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THE TREATMENT OF CANCER OF THE BREAST AND THE RESULTS OF OPERATION*

BY RICHARD H. OVERHOLT, M.D.,† AND EDWIN B. ECKERSON, M.D.†

BY our present method of discovering and treating carcinoma of the breast, the most that one can promise is that one patient in every three will be alive five years later and one in every four will be well after the ten-year period. It goes without saying that these average end result figures should be improved.

It is now well agreed that advances in the treatment of mammary cancer depend upon first, the early recognition of an abnormality in the breast by the patient (education of the public); secondly, upon the realization by that patient's physician that any lump in the breast may be a cancer which deserves excision and microscopic examination (proper advice); and thirdly, upon facilities for immediate radical surgery, radiation or both (adequate treatment) once the diagnosis has been verified or established by microscopic examination.

We, as doctors, should in the first place be more immediately concerned with the advice we are to give people who come to us with some abnormality in the breast. Unfortunately, there are many patients who seek advice as soon as a lump is discovered but are reassured by "it's nothing, watch it and if it gets larger, come back to me for a re-examination". It would seem that too often the classical signs of malignancy are sought for. A tumor, plus one or more findings such as skin fixation, retraction of the nipple, distortion of the contour of the breast surface or ulceration, are too frequently considered necessary before excision and microscopic examination should be recommended.

VISUAL CONCEPTION OF BREAST CANCER

Frequently, photographs which are shown in standard textbooks of surgery and in current articles are partly responsible for the idea that we must see something wrong with the breast as well as palpate a lump before consideration is given to a diagnosis of cancer. A glance at the illustrations which so frequently accompany articles upon this subject will immediately convince one that we have been shown over and over again late stages of the disease. We have been taught to visualize a breast cancer clinically as something that can be seen as an abnormality of the breast. Our attention has been focused upon a swollen or shrunken breast, upon a contour of the breast surface altered by dimpling of the skin or retraction of the nipple and upon an ulcerating or sloughing lesion.

Our visual conception of breast cancer should be one which includes the early lesion. We should focus attention on a normal appearing breast without dimpling or puckering or without nipple retraction. The presence of a palpable tumor should in itself be considered the classical sign. In substance the advice of Auchincloss[1] should be universally taught, "Urge every woman, over twenty, to intentionally and purposefully feel the breasts for a lump or lack of homogeneity of substance at reasonably frequent intervals all the rest of her life." When a patient has been taught to present herself at the first sign of a possible tumor, it then becomes equally important that every lump seen by a physician be considered dangerous and worthy of surgical diagnosis. The textbook signs of malignancy should be forgotten. Waiting for them to appear is robbing the patient of perhaps her only opportunity to receive the benefits of surgery when the disease is local in its extent. Microscopic examination is the only exact way to establish the diagnosis at a time when treatment is most certain to be curative. In a recent bulletin of the Massachusetts Department of Public Health[2] a report of the California State Cancer Commission was published. In this report there is this statement: "Every single gross nodule present in the breast in a patient over the age of twenty-five years should be explored, unless the diagnosis of cancer is obvious."

In the early case, however, a careful inspection and comparison of both breasts may reveal suggestive evidence of malignancy. An alteration in the contour of the affected breast is the second earliest sign of possible cancer. A comparison of the front aspect of both breasts, and also the profile view, is important. In figure 1 are shown profile studies in early breast carcinoma. There may be a very slight alteration beneath the nipple as shown in Diagram A. At times the general contour is not disturbed, but

*Lahey Clinic, Boston, Mass.

†Overholt, Richard H. — Surgeon, Lahey Clinic, Boston. Eckerson, Edwin B. — Fellow in Surgery, Lahey Clinic, Boston. For records and addresses of authors see "This Week's Issue," page 734.

the entire breast is uniformly found to be smaller on the affected side. More obvious changes are shown in Drawings C and D of figure 1. The photograph of a patient who had a carcinoma in the right breast is shown in figure 2. There is a definite difference in breast size, as seen in the anterior view. The lateral pictures illustrate the value of profile comparison. On one side, the nipple bears a normal relationship to the dome of the breast, whereas in the affected breast, the nipple has been displaced upward.

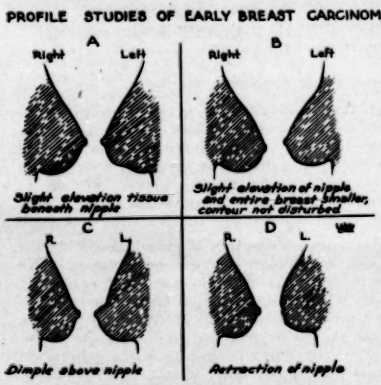


FIGURE 1. Drawings of the contour of normal and abnormal breasts showing the appearance from a profile view. Various ways in which the contour of the breast may be altered by an underlying carcinoma are illustrated.

FIGURE 2. Photographs of a patient who had an early carcinoma of the breast. At the first glance it is difficult to see any change in the breast contour. The lateral photographs show that the right nipple is elevated and points differently than the nipple on the left. In the upper and inner quadrant of the right breast a freely movable mass, 3 cm. in diameter, was found. The patient was unaware of a breast abnormality. The lesion was discovered during a routine postoperative thyroid examination. A radical mastectomy was performed forty-eight hours after the lesion was first discovered. The chances of a normal life expectancy are good.

FIGURE 3. Photograph of a patient who had had a slight dimpling of the under surface of the left breast for a period of four weeks. There was a questionable area of thickening beneath. A definite tumor could not be demonstrated. Immediate frozen section revealed an early carcinoma simplex. Axillary lymph nodes were not involved. An ideal case from the standpoint of prognosis.

In figure 3 there is shown a photograph of a patient with more dimpling in the affected breast. Figure 4 is a photograph of a patient

FIGURE 4. Photograph of a patient who had been watching the progress of a lump in the left breast for a period of two years. Was not advised that she possessed a serious lesion worthy of operation until the nipple became involved. The good chances for a five-year cure are, of course, gone. This picture is quite representative of the typical textbook picture of breast cancer. It is obviously a late stage of the disease.

with an obvious carcinoma. It is undoubtedly a late stage of the disease. The picture represents the usual textbook illustration of a cancer of the breast. There is no point in emphasizing such a visual picture as this. It is shown for comparison. In the future it is hoped that all cases will come to operation long before this stage is reached.

PALPABLE LYMPHATIC NODES

Considerable importance has been attached to the presence or absence of palpable axillary nodes in regard to operability and prognosis. In our experience, the microscopic examination of the axillary contents has shown metastatic involvement in 96 per cent of those cases in which

a notation was made of the presence of preoperative palpable axillary nodes. However, the importance of the presence or absence of axillary nodes is open to question as a number of reports show higher discrepancies between palpable nodes and histologic confirmation of malignancy. Patients should not be condemned with a grave prognosis and denied surgical treatment because of palpable axillary glands. They may be of inflammatory origin. Lee[3] says that an error of 16 per cent occurs in the preoperative estimation of the presence or absence of cancer in the axillary lymph nodes. Conversely, Lane-Claypon[4] from a study of 2006 cases of breast carcinoma, states that the negative clinical findings for axillary lymph nodes were incorrect in over one half of the cases. There is, therefore, some doubt as to the clinical value of palpable axillary lymph nodes in determining operability. It is our policy to do the radical operation, if the status of the patient permits, in all cases of proved malignancy when metastasis cannot be demonstrated beyond the axillary nodes.

CHRONIC CYSTIC MASTITIS

Undoubtedly, chronic cystic mastitis is the most frequent lesion to be confused with malignancy of the breast, and a word should be said regarding it. There is evidence that chronic cystic mastitis may predispose to mammary cancer. The chemical effect of secretions and exudate from milk stagnation in the ducts may result in chronic irritation. Ewing[5] states, "The great majority of cancer develops in organs altered by reactive inflammatory processes, as occur in chronic productive mastitis." The same author points out that about 10 per cent of cases of chronic cystic mastitis develop cancer and about 6 per cent of breasts excised for chronic cystic mastitis show pre-cancerous lesions or minute areas suggestive of malignancy. Ewing also states that very few cancers fail to show some degree of chronic cystic mastitis in the surrounding breast tissue. Cutler[6] has observed that about twenty per cent of all cancers begin with lesions of a cystic state. We have found that 12 per cent of our cases of chronic cystic mastitis show considerable intraductal hyperplasia on microscopic examination. We prefer to consider intraductal hyperplasia in the chronic cystic breast as a pre-cancerous condition. Recently our attention has been called to the case of a woman of sixty-two years who had a simple mastectomy performed for chronic cystic mastitis with intraductal hyperplasia. One year later, the patient succumbed from another cause. Incidentally, at autopsy a carcinoma simplex was found to be present in the fascia over the pectoral muscles beneath the mastectomy scar. In another patient in whom a subcutaneous excision of the breast was performed, a cancer developed in the breast tissue beneath the nipple fourteen years later. Our present attitude toward chronic cystic mastitis therefore has been as follows: Discrete palpable tumors are excised and an immediate frozen section made. If there is no tumor present, or for vaguely defined areas of thickening in association with chronic cystic mastitis, we keep the patient under observation and follow at intervals of three to six months. If the area of thickening fails to disappear or becomes more pronounced, exploration is advised. The older the patient, the more prone we are to recommend early histologic examination. For bilateral chronic cystic mastitis, the so-called "shotty" breast which is uncomplicated by the presence of a discrete tumor or by the presence of a nipple discharge, we do not for that lesion alone advise bilateral simple mastectomy. Removal of the breasts is sometimes indicated as a measure to relieve pain. If there is a brownish or bloody nipple discharge and an intraductal papilloma cannot be demonstrated, clinically or by exploration, we believe a simple mastectomy should be performed. In our experience, carcinoma has been present in one-third of the cases showing a sanguineous discharge. One-third have been due to an intraductal papilloma and the other third to intraductal hyperplasia associated with chronic cystic mastitis. This would suggest that a sanguineous discharge may in itself indicate serious trouble. Therefore, when a sanguineous discharge is present and when we are unable to demonstrate an intraductal papilloma, we proceed with a simple mastectomy. If further section of the removed breast tissue shows evidence of malignancy, a radical dissection of the axilla is then, of course, performed.

BENIGN TUMORS AND CYSTS

The clinical differentiation of benign tumors, cysts and early malignant lesions is often impossible. This difficulty is of little consequence, since any palpable lump in the breast should be removed and examined histologically. The diagnostic responsibility is shifted from the clinician to the pathologist. The earlier the breast lump comes to operation, the greater becomes the dependency upon the pathologist. There have been several instances in our own experience when insignificant small clinically benign lesions proved to be early carcinoma. In one case an adenocarcinoma was found arising from an intraductal papilloma, in another from an intracanalicular adenofibroma. One case of carcinoma simplex was associated with an intraductal papillary cyst adenoma. In another instance, a carcinoma simplex was found in the right breast and an early adenocarcinoma was present in an intraductal papillary adenocys-

toma in the left breast. We have also seen one adenofibroma with beginning malignant degeneration. According to Ewing, malignant forms of the papillary intracystic fibroadenoma are fairly common. He suggests that they probably develop as cancer and have not originated from a long-standing fibroepithelial tumor, although cases of the latter have been reported. The treatment of these various tumors beyond local excision depends entirely upon the histologic findings.

GENERAL STATISTICS IN BREAST LESIONS

Recently we have reviewed all cancer of the breast cases seen at the Lahey Clinic in the ten-year period from January, 1923 to January, 1933. The condition of all but four of the cases is known at the present time, giving a follow-up percentage of 97.7 per cent. Because of the magnitude of the series and the high follow-up percentage, a brief report of the results of this study seems justified. During this ten-year period, 719 patients complained of or were found to have breast lesions. About a third, or 280 of these, were not operated upon. Many of the unoperated cases had mild forms of bilateral chronic mastitis and operation was not recommended. Another third, or 238, were operated upon and were found to have a benign lesion. The most frequent benign lesion was chronic cystic mastitis which was diagnosed in 121 of the operated cases. The various forms of benign lesion found are listed in table 1.

TABLE 1

DISEASES OF BREAST 1923-1933

Total Number Patients	719	
Total Number Benign Cases		518
Total Number Malignant Cases		201
Unoperated Benign Cases		280
Operated Benign Cases		238
Chronic Cystic Mastitis		121
Fibroadenoma		66
Papillary Cystadenoma		6
Lipoma		5
Aberrant Breast		4
Abscess and Acute Mastitis		11
Tuberculosis		3
Other Benign Lesions		22

A malignant lesion was found in 201 of the 719 cases. In other words, 27 per cent of those who sought advice about a breast lesion had a cancer of the breast. Of these 201 cancers, 17 or 8.9 per cent were inoperable and fifteen refused treatment. This leaves a total of 169 cases of operated cancer of the breast cases.

CARCINOMA OF THE BREAST STATISTICS

In the carcinoma of the breast series of 169 cases, we were able to follow all but four. These four cases have been counted as dead in the following statistics. The only cases not included in the series are four in whom the pathologic report has not been verified. This reduces the study to a series of 165 patients. (See table 2.)

TABLE 2

CANCER OF BREAST, LAHEY CLINIC 1923-1933

Total Number Seen	201	(27% of all breast lesions)
Refused Operation	15	
Inoperable	17	
Operated Breast Cancers	169	
Complete Follow-Up	165	(97.7%)
No Pathologic Report	4	
Simple Mastectomy	30	
Primary Operative Deaths	4	(2.3%)
Total Cases Included in Mortality Statistics		165

The radical operation was done in 134 instances. A modified Halsted procedure was carried out with a wide excision of skin, the removal of both pectoral muscles, complete axillary dissection and removal of the upper rectus fascia. In thirty elderly and poor risk patients, a simple mastectomy was, by election, carried out. Seven of the thirty patients were hopeless cases and a simple excision of the breast was done for palliation only. These cases are included in the statistics. There were four operative deaths (2.4 per cent). In three a pulmonary embolus caused the death, in the fourth, postoperative shock.

A brief report on the present status of this group of 165 patients as found at the end of the ten-year period is shown in table 3. All

TABLE 3

STATUS OF CANCER OF BREAST CASES AT END OF TEN-YEAR PERIOD (JANUARY, 1923 TO JANUARY, 1933)

Total Number of Cases	165	
Living	89	54% of total
Dead	76	46% of total
Died of Disease	56	34% of total
Died of Other Causes	20	
Living with Metastasis	20	
Living without Metastasis	69	
Died within Two Years	46	60% of deaths
Died within Two Years of Disease	39	70% of those dying of cancer

cases, operable, inoperable and those admitted during that time with recurrences are included. It is interesting to note that 54 per cent of the entire group were alive at the end of the ten-year period. It is also interesting to see the rather high percentage of the deaths that resulted from other causes. In this particular group of 165 patients, twenty were reported as having died of some disease not related to the

breast carcinoma. It is also interesting to note that of the living cases, there are twenty who were living with metastases at the end of the ten-year period and that sixty-nine of the original number were still alive without any evidence of metastases. Of the patients who died, the largest per cent died within the first two-year period. It is found that 60 per cent of all the deaths occurred within the first two years and that seventy per cent of those patients dying of the disease, died within a two-year period.

FIVE-YEAR RESULTS

A study of those follow-up records on patients operated during the first half of the ten-year period has provided five-year results on sixty-two patients. Of the original number, twenty-five, or 40 per cent, were living five years later without evidence of cancer. Of the surviving five-year cases in this group, eight have since developed metastasis, three of whom have died. There have been two subsequent deaths unrelated to malignancy among the five-year group.

TABLE 4

FIVE-YEAR RESULTS

Operated Cases 1923-1928	62	
Living without Evidence of Cancer Five Years After Operation	25	40%
Living with Metastasis Developing After Five Years	5	
Died of Cancer After Five Years	3	
Died of Other Causes After Five Years	2	

There is probably no time in a cancer patient's life when she may consider herself free of the possibility of metastasis. One of the longest reported intervals, thirty-one years, between operation and the appearance of metastasis from carcinoma of the breast has been reported by Steward[7]. There are several reports of instances as long as twenty-five years. According to Lane-Claypon[4] 12 per cent of the cancer deaths occur between five and ten years after operation. However, the majority of patients who die as a result of the disease die within two years of the operation. Lane-Claypon says that just under 80 per cent of all deaths from cancer occur under three years and only 8-9 per cent between the three and five-year intervals.

It is the experience of most authors that the axillary lymph nodes will be involved in approximately 50 per cent of the cases that come to operation. In this group of cases, 48 per cent were found to have axillary involvement. Adair reports 51 per cent of involvement whereas in Mathew's series, 67.3 per cent had axillary involvement at the time of operation. Although distant metastases do occur without demonstrable axillary lymph node involvement at the time of operation, nevertheless one of the best criteria for a favorable prognosis is the lack of microscopic axillary metastasis at the time of operation. The literature indicates that, on the average, the group with no axillary involvement will show a proportion of five-year cures as high as one half to three quarters, whereas the positive axillary group will show approximately one fourth as five-year cures. We were surprised to find in our series, however, of twenty-nine cases with lymph node involvement at operation, that nine or 31 per cent were living without metastasis at five years. Of thirteen cases without node involvement, five, or 38 per cent survived the five-year period.

AGE FACTOR

Much has been written to the effect that cancer of the breast in the young, that is in those under forty, runs a much more rapidly fatal course than in older patients. Among others Ewing[2] states that age is a very important factor in the prognosis and Lee[3] uses age, lactation or pregnancy, rate of growth and extent of disease as the basis of his clinical index of malignancy. On the other hand, Mathews[8] found that of the twelve youngest in his series, three were still living ten years after operation and the average duration of life following operation in the twelve cases was 5.83 years, whereas in fifty-three patients of the ages fifty to fifty-nine the average duration of life was 4.9 years. Lane-Claypon points out that on the whole, there is no striking difference in the age group and makes the statement that prognosis in the young may be erroneous. Judd and Sistrunk[9] came to the same conclusion from a study of Mayo Clinic cases. In our sixty-two cases operated upon five or more years ago, there were eight patients between the ages of twenty-nine and thirty-nine. Of these, four are still living, and four are dead. Two of these four died after five years. In spite of the small number of cases here, a five-year cure in 50 per cent and a five-year survival of 75 per cent in this younger group are of some importance.

BILATERAL INVOLVEMENT

It is entirely possible that there may develop in both breasts simultaneously, or at intervals, two cancers of completely separate origin. Nevertheless, in view of the fact that the metastases in cancer of the breast are among the most bizarre of any common cancer (Warren and Witham[10]), we believe that it is practically impossible to say in cases of bilateral breast cancer whether the tumor in the second breast is a metastasis from the first or a new tumor. We have had six cases of bilateral breast cancer, including two with simultaneous involvement of both breasts and two in which the opposite breast became the seat of the cancer over ten years after the first operation.

We have operated upon three patients for sarcoma of the breast, an incidence in this series of 1.7 per cent. All three of these are alive at present, although two of them have been too recently operated upon to be of importance statistically.

RADIATION

The value of deep x-ray therapy and radium implantation as an adjunct in the treatment of breast malignancy is unquestioned. During the past eight years it has been our practice to give all postoperative carcinoma of the breast cases intensive deep x-ray treatment. More recently, interstitial implantation of radon has been used in inoperable lesions. Sufficient time has not elapsed to justify conclusions regarding the effectiveness of such therapy.

All cases are followed in six weeks, three months and then at six-month intervals the rest of their lives. Roentgenograms of the chest and long bones are made at varying intervals during the check-up period every three, six or twelve months. Metastases are heavily radiated. In women operated before the menopause, x-ray treatments are directed to the ovaries to produce an artificial menopause and thereby check the stimulation of breast tissue by ovarian hormones. Solitary recurrences in the scar or in accessible situations have been widely excised as well as treated by intensive deep x-ray. We have had two patients whose recurrences were kept under control for a period of over five years after their development.

SUMMARY

1. Illustrations of breast carcinoma which are found in textbooks and articles on the subject have produced a visual conception of cancer in its late form. The importance of focusing attention upon a normal appearing breast, within which there is a palpable tumor, has been emphasized.

2. The differential diagnosis of tumors of the breast is not an important problem from a clinical standpoint. All breast tumors warrant a microscopic diagnosis. A lump in the breast which is malignant should be removed before it is possible to tell clinically what it is.

3. The frequency that various breast lesions were found in a ten-year period at the Lahey Clinic has been given. All but four of the 169 carcinoma cases treated during that ten-year period were followed. Their condition at the end of that period has been reported upon.

4. Five-year results in sixty-two cases have been given.

5. Postoperative treatment and follow-up methods have been discussed.

REFERENCES

1 Auchincloss, H.: How more women can be saved from dying from cancer of the breast. M. J. & Rec. 130: 446 (October 16) 1929.
2 Cancer Commission of the California State Medical Association. Reprinted Cancer Clinic Bulletin. Mass. Dept. Public Health. No. 15 (July) 1934.
3 Lee, B. J.: End results in treatment of cancer of the breast by radical surgery combined with pre and postoperative irradiation. Am. J. Surg. 20: 405 (May) 1933.
4 Lane-Claypon, Janet E.: Late results of operation for cancer of the breast. Rep. Pub. Health & M. Subj., Great Britain, Ministry of Health. No. 51, 1928.
5 Ewing, James: Neoplastic Diseases. A treatise on tumors. Third Edition. Philadelphia and London: W. B. Saunders Company. P. 545, 1928.
6 Cutler, M.: Diagnosis and treatment of precancerous lesions of the breast. Illinois M. J. 61: 313, 1932.
7 Steward, F. J.: Cancer of the breast; recurrence thirty-one years after operation. Brit. M. J. 1: 156, 1926.
8 Mathews, Frank S.: Results of operative treatment of cancer of the breast. Ann. Surg. 96: 871 (Nov.) 1932.
9 Judd, E. S., and Sistrunk, W. E.: End-results in operations for cancer of the breast. Surg. Gynec. & Obst. 18: 289, 1914.
10 Warren, Shields, and Witham, E. M.: Studies on tumor metastasis. 2. The distribution of metastasis in cancer of the breast. Surg. Gynec. & Obst. 57: 81 (July) 1933.

MESENTERIC VASCULAR OCCLUSION*

BY J. E. DUNPHY, M.D.,† AND ROBERT ZOLLINGER, M.D.†

A CORRECT preoperative diagnosis of mesenteric vascular occlusion is rarely made. Trotter[1] in an extensive review of the subject in 1913 found that only four per cent of 366 cases were diagnosed before operation or autopsy and Meyer[2], from a study of ninety-two cases collected from the literature of the decade, 1920 to 1930, concluded that there was no syndrome characteristic of the condition. It is the purpose of the present paper to call attention to certain clinical features of the disease that are of diagnostic importance and to report a case in which an extensive successful resection followed an early diagnosis.

During the period between September, 1932 and February, 1934 there were five cases of mesenteric vascular occlusion on the surgical service of the Peter Bent Brigham Hospital. The first four of these cases terminated fatally. In only two was a diagnosis of mesenteric thrombosis even considered and in only one of these was operation performed. These unfortunate, but apparently unavoidable, results in a disease which if recognized early may be amenable to surgery, stimulated a careful analysis of the cases.

Although the clinical picture varied considerably, several important features were recognized in each case. (1) It was observed that

*From the Surgical Service of the Peter Bent Brigham Hospital, Boston, Massachusetts.

†Dunphy, J. E.—Surgeon, Peter Bent Brigham Hospital, Boston. Zollinger, Robert—Junior Associate in Surgery, Peter Bent Brigham Hospital, Boston. For records and addresses of authors see "This Week's Issue," page 734.

regardless of the duration of the attack the clinical picture was not typical of any of the common surgical emergencies. The localized tenderness of appendicitis, the rigidity of perforated ulcer, the visible peristalsis and early distention of acute intestinal obstruction were not present. It was not the problem of a mistaken diagnosis but of no diagnosis. However, the patients were obviously ill from an abdominal lesion that simulated obstruction. (2) The character of the pain in each case was out of proportion to the clinical picture. This was so striking in one instance that the house-staff favored a diagnosis of hysteria. Another significant characteristic of the pain was its persistence after the usual measures for its relief had been instituted, notably small doses of morphine, enemata and the Wangensteen[3] apparatus providing continuous gastric lavage. (3) The only constant physical finding was abdominal tenderness, more or less generalized, with rebound tenderness referred to the point of pressure. (4) All the patients had a high leucocytosis and a high or mounting pulse rate with a temperature that was normal or only slightly elevated. Finally, it was evident in each case that there was a gastro-intestinal disturbance, but this was not manifested in any constant manner. Difficulty in moving the bowels without complete obstruction was seen in all cases. Vomiting was variable and bloody diarrhea did not occur. Rapidly progressing shock was seen in one case.

As a direct result of this study the fifth case of mesenteric vascular occlusion was recognized as such and an early and successful resection was performed. It is reported in detail.

CASE REPORT

M. E. W. (P.B.B.H. Surg. 45248). A white woman, 45 years of age, was recovering on the surgical wards of the Peter Bent Brigham Hospital from operations for the removal of a sacral cyst and a chronically infected ischial bursa. January 13, 1934, seven days after the removal of the bursa, at a time when the postoperative clinical picture was entirely satisfactory, she was suddenly seized with severe generalized abdominal pain accompanied by nausea and vomiting.

Physical examination showed a well-preserved, middle-aged woman writhing in bed in severe pain with a temperature by mouth of 98.6 and a pulse of 100 per minute. The leucocyte count was 8,900 per cubic millimeter. The positive findings were restricted to the heart and abdomen. The heart was slightly enlarged to the left and there was a soft systolic murmur audible at the apex. There was generalized abdominal tenderness without rigidity or distention. Rebound tenderness was referred to the point of pressure.

The patient was thought to be exaggerating her symptoms but a hypodermic injection of sterile 0.9 per cent normal saline produced no essential change in the character of the pain. Twelve hours after the onset of the pain the pulse had risen to 120, temperature 99°, and the leucocyte count was elevated to 13,000 per cubic millimeter. Because of the singular obscurity of the picture and the rising pulse and white blood cell count, a diagnosis of early mesenteric thrombosis was suggested and the leucocyte count and pulse rate followed closely. During the next few hours the pulse rate per minute rose to 135 with normal electrocardiographic tracings. A roentgenogram of the abdomen was negative.

Twenty-four hours after the onset of the pain the temperature was 101° by mouth. The pulse rate was 140 and the white blood count was 30,000. The abdomen looked slightly distended but felt doughy. The tenderness was generalized and had become more severe.

A diagnosis of mesenteric thrombosis was made and exploration advised.

Operation: January 14, 1934, twenty-six hours after the onset of the pain, operation was performed under spinal anesthesia by one of us (R.Z.). The abdomen was opened through a right rectus incision, peritoneal adhesions freed from the abdominal wall, and a moderate amount of bloody fluid evacuated. A segment of the terminal ileum was found to be extremely hemorrhagic and gangrenous. Although the cecum and ascending colon were not gangrenous, that portion of bowel supplied by the right colic artery was definitely discolored. No attempt to identify the artery was made, but a wide resection of the terminal ileum, cecum, ascending and transverse colon was done. Approximately the right one-third of the transverse colon was removed and the lumen closed with a continuous catgut suture reinforced with interrupted sutures of fine silk to the serosa. An end-to-side anastomosis of the ileum and transverse colon was done, using a Kerr aseptic technique. The abdomen was closed without drainage.

Seven hundred and fifty cubic centimeters of ten per cent glucose were infused into a vein during the procedure and this, coupled with three doses of fifty mg. of ephedrine, brought the blood pressure, which fell to a low level at the start, to a satisfactory figure at the close of the operation. The pulse remained fairly good throughout the operation. It was necessary to supplement the spinal anesthesia with a small amount of ether at the time of closure of the abdomen. Clinically the patient's condition seemed less precarious immediately after the operation.

Postoperative Course: During the first few postoperative days the course was stormy. On the second day the patient was thought to have had a pulmonary embolus because of great air hunger without signs of pneumonia or collapse. She complained of precordial distress and demanded that a cold breeze be kept blowing through the room. Oxygen was administered through a nasal catheter.

Gradually, however, the pulse and respiration returned to normal and the convalescence was otherwise uneventful except for a diarrhea which was controlled by diet and paregoric. The patient was discharged apparently symptom-free twenty days after the intestinal resection. At the time of the present writing, six and one-half months since the operation, she is alive and well except for slight diarrhea and complaints referable to the sacral cyst which was not completely removed. She has gained five pounds since her discharge from the hospital.

Pathological Report: The portion of excised bowel measured 216 centimeters, 172 centimeters of which was ileum. The terminal 150 centimeters of small bowel was thickened, edematous, and discolored. The adjacent mesentery was thick and hemorrhagic, and numerous thrombosed veins could be palpated in it. There was a mild vascular congestion of the cecum and transverse colon. The cause of the infarction was obscure. Microscopic examination showed an acute infarction of the intestinal wall with marked

edema, extensive extravasation of blood and moderate infiltration of polymorphonuclear cells. There were a few polymorphonuclear leucocytes infiltrating the arterial walls which suggested the possibility of thrombosis or embolism of arteries at the base of the mesentery.

COMMENT

Much has been written about the symptomatology, but very little about the differential diagnosis of mesenteric vascular occlusion. The older writers considered a source of embolus, copious melena, rapid fall of temperature, shock and severe abdominal pain essential to diagnosis. Obviously such postulates are rarely if ever fulfilled. As Klein[4] has emphasized, and as can be seen from the number of cases of recovery with laparotomy alone, it is not necessarily a fatal disease and there may be a tremendous variation in the severity of the symptoms. Most observers, however, have recorded the multiplicity of symptoms that may occur without noting anything characteristic about them. For this reason, the disease is rarely considered in the differential diagnosis of the acute abdomen, even in unusual cases, as is well exemplified by the discussion of a recent Cabot case[5].

So far as we have been able to determine Loop[6] is the only investigator who has considered the disease as a clinical entity. It is interesting that, although our observations were made without a knowledge of his contribution, we have stressed the same points which he emphasized after a study of his nine personally observed cases. He concluded that the paramount symptoms are a disturbed function of the gastro-intestinal tract, manifested by severe abdominal pain, vomiting, difficulty in moving the bowels without complete obstruction and shock of variable degree. He noted the absence of fever, muscular spasm and distention.

It is not our contention that there is a syndrome pathognomonic of mesenteric vascular occlusion. Nor do we maintain that the features which we have outlined are essential to diagnosis, for the white count may be as misleading in this disease as in others. However, we feel that these features when present render a diagnosis much more tenable than previous observations would indicate. Given a patient with (1) severe abdominal pain, not relieved by ordinary measures, (2) a paucity of physical findings so that the picture as a whole is confusing and does not fit any of the usual surgical emergencies, (3) a high leucocytosis and pulse rate with a relatively low temperature, (4) abdominal tenderness, more or less generalized, and (5) evidence of a gastro-intestinal disturbance manifested by either vomiting or diarrhea or by signs of subacute obstruction, mesenteric thrombosis is a likely possibility.

SURGICAL MANAGEMENT

The first successful resection for mesenteric vascular occlusion was performed by Elliot[7] at the Massachusetts General Hospital in 1894. Twenty-seven years later Klein[4] estimated that only twenty-four successful cases had been reported. In the next ten-year period there were twenty-nine recoveries among ninety-two cases collected by Meyer[2]. This marked increase in the number of successful resections can be attributed to bolder surgical measures.

There is no place for conservative methods in the surgical treatment of this disease, if gangrene is present or imminent. Enterostomy, often a life-saving procedure in intestinal obstruction, is worthless. Exteriorization, recently advocated by Stulz and Fontaine[8] is equally dangerous because, if the thrombosis is venous, there is a tremendous loss of blood into the involved segment of bowel[9]. Moreover, among seventy unselected operated cases collected from the literature of the last fourteen years there have been no recoveries following exteriorization except the two reported by Stulz and Fontaine. There were fourteen cases in Trotter's series in which either enterostomy or exteriorization, or both, were done. All ended fatally. Meyer[2] has stressed the futility of enterostomy or exteriorization.

The poor general condition of these patients has been used as an argument against extensive procedures. This is hardly a valid reason when the alternative is death. Moreover, as Meyer has pointed out, there is little trauma to a well-conducted resection and it is astounding how well these patients survive what appears to be a hopeless situation. Meyer[2] resected 230 centimeters of small bowel and performed a lateral anastomosis on a patient whose pulse could not be obtained before operation or for fourteen hours afterwards. Mitchell's[10] patient was operated upon in a moribund condition without anesthesia and prompt recovery followed a resection and anastomosis. In one of McGuire's[11] cases seven and one-half feet of bowel were resected without interrupting a four months' pregnancy. Dr. C. E. Bird performed the only other successful resection done at the Peter Bent Brigham Hospital, removing eighteen inches of bowel and doing an immediate anastomosis on a hypertensive, markedly arteriosclerotic man, sixty-one years of age.

While the necessity for resection is evident, the issue is less clear cut in regard to the best method of making an anastomosis. Elliot recommended immediate anastomosis as the ideal procedure but in his successful operation performed a secondary closure. Jackson, Porter and Quinby[12] cautioned against immediate suture because of the difficulty in determining lines of demarcation and the danger of advancing gan-

grene. More recently Green and Allen have urged the use of the multiple stage resection and reported a successful case, so treated[14]. It is fair to say that the majority of surgical opinion favors secondary closure. Of especial interest, therefore, is the fact that the highest percentage of recoveries has followed in those cases in which immediate anastomosis was performed. Meyer noted this and the only cases to recover at the Peter Bent Brigham Hospital have been after immediate anastomosis. In sixty-nine cases, reported by forty-three different observers in the last fourteen years, there have been no recoveries in ten cases in which enterostomy was performed, nor in four in which exteriorization was done. Four recoveries followed nine attempts at secondary closure. There were six recoveries in eighteen laparotomies, the bowel obviously not being gangrenous. There were thirty-two resections performed with immediate anastomosis, twenty-one of which were successful.

It is certain that primary anastomosis affords a smoother and more rapid convalescence. Vascular occlusion almost always involves the ileum, and a secondary closure is rendered difficult by the high digestive power of the intestinal contents. It took six months to complete the closure in one of Brady's[13] cases and Loop's[6] lost a patient from inanition after recovery apparently had resulted from a resection without anastomosis.

The available evidence prevents drawing definite conclusions regarding the relative merits of primary or secondary closure.

SUMMARY

1. A clinical syndrome suggesting the diagnosis of mesenteric vascular occlusion is presented.

2. A case of mesenteric vascular occlusion is reported in which early diagnosis followed by an extensive intestinal resection with primary closure resulted in recovery.

3. Primary resection and anastomosis appear to have given the best results in our limited experience as well as in the reported cases from the literature.

REFERENCES

1 Trotter, L.: Embolism and Thrombosis of the Mesenteric Vessels. Cambridge University Press, 1913.
2 Meyer, J. L.: Mesenteric vascular occlusion. Ann. Surg. 94:88, 1931.
3 Wangensteen, O. H., and Paine, J. R.: Nasal catheter suction siphonage: its use and technic of its employment. Minnesota Med. 16:96, 1933.
4 Klein, E.: Embolism and thrombosis of superior mesenteric artery. Surg. Gynec. Obst. 33: 385, 1921.
5 Cabot Case Record 20201. New Eng. J. Med. 210:1077, 1934.
6 Loop, R. G.: Mesenteric vascular occlusion. J. A. M. A. 77:369, 1921.
7 Elliot, J. W.: The operative relief of gangrene of intestine due to occlusion of the mesenteric vessels. Ann. Surg. 21:9, 1895.
8 Stulz, E., and Fontaine, R.: Deux cas de thrombose mésentérique, opérés l'un par simple extériorisation des anses infarcies, l'autre par extériorisation, entéro-entérostomie et résection intestinale secondaire tardive. Bull. et mém. Soc. Nat. de Chir. 58:1124, 1932.
9 Scott, H. G., and Wangensteen, O. H.: Blood losses in experimental intestinal strangulations and their relationship to degree of shock and death. Proc. Soc. Exper. Biol. & Med. 29:748, 1932.
10 Mitchell, J. P.: Mesenteric thrombosis. Ann. Surg. 77:299, 1923.
11 McGuire, S.: Mesenteric thrombosis. Virginia M. Monthly. 50:23, 1923.
12 Jackson, J. M., Porter, C. A., and Quinby, W. C.: Mesenteric embolism and thrombosis; a study of two hundred and fourteen cases. J. A. M. A. 43:110, 1904.
13 Brady, L.: Mesenteric vascular occlusion. Arch. Surg. 6:151, 1923.
14 Green, J. R., and Allen, C. H.: Mesenteric vascular occlusion with recovery. J. A. M. A. 103:11, 1934.

HAVERHILL FEVER FOLLOWING RAT-BITE*

BY F. H. SCHARLES, M.D.,† AND C. V. SEASTONE, M.D.†

A CRITICAL review of the literature on rat-bite fever (Sodoku) reveals that, in general, the cases reported fall into one of three categories: cases exhibiting the typical clinical syndrome proved to be due to the specific causative organism, *Spirillum minus*; those exhibiting symptoms suggestive of the disease, but in which the spirillum was not identified or in which some other organism was isolated; and those cases which resemble the disease neither clinically nor bacteriologically, but which are called "rat-bite fever" because an infection followed chronologically the bite of a rat. The cases reported by Schottmüller[1], Blake[2], Tileston[3], Dick and Tunnicliff[4], Litterer[5], and Ebert and Hesse[6], which followed a fairly typical course but in which a streptothrix and not a spirillum was found, fall into the second group.

One possible explanation for this apparent discrepancy between clinical and bacteriological data is to be found in the case reported by Mackie and McDermott[7]. Their patient developed the typical syndrome ascribed to rat-bite fever. A gram-negative bacillus, similar to the streptothrix described by Blake[2], however, was isolated from the blood culture. The patient's serum agglutinated this organism in high titre. Later they biopsied a cervical gland, in which they were able to demonstrate *Spirillum minus*. They believed that the streptothrix was probably a secondary invader. McDermott[8], in an excellent review of the literature on rat-bite fever, feels that most if not all of the cases of rat-bite fever ascribed to a streptothrix were actually infected with the spirillum, with streptothrix a secondary invader.

Another possible explanation is that some of

*From the Laboratories of the Collis P. Huntington Memorial Hospital of Harvard University and the Department of Bacteriology, Harvard Medical School.

†Scharles, F. H.—Assistant Physician, Collis P. Huntington Memorial Hospital. Seastone, C. V.—Moseley Traveling Fellow 1933-1934. For records and addresses of authors see "This Week's Issue," page 734.

the cases reported actually represented a disease entity distinct from rat-bite fever, but resembling it superficially. The case here presented illustrates, we believe, this eventuality.

REPORT OF CASE

The patient, a junior medical student, was bitten on the right thumb by a pregnant female rat on July 1. The rat was one of a colony of albino rats which had been inbred for many generations and was descended from the original strain started by Dr. Slonaker in 1903. There had been no evidence of disease among the rats, and so far as we could ascertain no rat from any other farm had been introduced into the colony since it was started at our laboratory three years before.

The wound was washed thoroughly and iodine was applied. Three days later, on July 4, the patient noted a few red streaks on the flexor surface of the right forearm. This was associated with some malaise and loss of appetite, but there was no fever. Later, the lymphangitis extended nearly to the axilla. No glands were palpable, but there was slight tenderness in the axilla. The local wound was somewhat tender, but not indurated. He was put to bed and local heat was applied. By the next day the lymphangitis had disappeared and the bite was hardly visible.

Early on the morning of July 6, the patient awoke with severe nausea. He attempted to vomit several times but produced only mucus. Mouth temperature was 103° F. There was generalized malaise, headache, and some photophobia. There was no recurrence of the lymphangitis, nor had the local lesion become aggravated. There was no lymphadenopathy. Physical examination was negative. There were no pathological findings in the urine. The white count was 18,400 per cu. mm. of blood with the following differential:

Neutrophiles	85%
Eosinophiles	0.5%
Lymphocytes	7.5%
Monocytes	6.5%
Myelocytes	0.5%

A blood culture, taken at the height of the fever, yielded no growth. Dark field examination of the blood was negative, and intraperitoneal inoculation of the fresh blood into white mice and guinea pigs failed to infect these animals.

The following day the patient felt considerably better and the temperature had fallen to between 101° to 102° F. A morbilliform eruption was found present over both arms, forearms, lower legs, and ankles, and somewhat less distinctly on the back. The rash was visible on the palm of the left hand, and a few blotches were seen on the posterior pharyngeal wall.

The patient improved rapidly. He became afebrile and the rash faded. The white count fell to 9,700.

There was a recurrence of the fever and rash on the evening of July 11, although both were less marked than before. The white count rose to 15,600. He complained of a tender right ankle, which was found to be slightly swollen and definitely warm to the touch. At this time there was no obvious fluctuation of the ankle. A repeated dark-field examination of the blood was negative.

Although this bout of fever lasted only twenty-four hours, the ankle slowly increased in size and the tenderness became exquisite. A crop of small, subcutaneous purpuric hemorrhages appeared over the inner aspect of the right ankle and instep. This can be seen in the accompanying photograph. On July 15, the left wrist became swollen and painful. The white count remained elevated from 14,000 to 18,000, but there was no fever. The wrist and ankle were baked, and the patient was placed on salicylates.

On July 15, the rat which originally bit the patient, and which had been isolated up to then, was killed. One cubic centimeter of the heart's blood of this rat was injected intraperitoneally into a guinea pig. Into another guinea pig was injected a

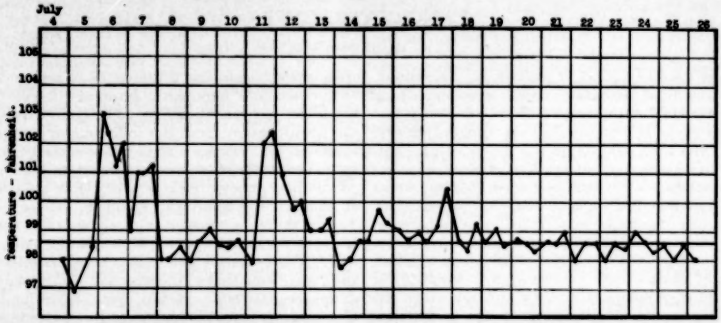
hash of liver, spleen, and kidneys. Unfortunately, no culture was made from the rat's teeth and gums. Neither guinea pig developed any evidence of disease in three weeks' observation, and their bloods showed no spirilla under dark-field examination.

The condition of the patient's wrist improved rapidly, but the ankle remained unchanged. On July 17, a mouth temperature of 100.4° F. was recorded, but except for this one instance he remained afebrile. X-rays of chest, teeth, and sinuses were reported as negative. An x-ray of the right ankle revealed only soft tissue swelling. Prostatic massage yielded no secretion.

On July 21 the right ankle was tapped by Dr. Walter Bauer, who easily removed about 10 cc. of fluid. This fluid was markedly cloudy, light straw-colored, and clotted after standing for about one-half hour. The cell count was 8,000 per cu. mm. of which nearly all were polymorphonuclear leukocytes. A specimen of fluid, preserved from clotting by the addition of heparin, showed no spirilla on dark-field examination, and no organisms were seen on direct smear. The remainder of the fluid was cultured. The bacteriological findings are reported below. A second blood culture taken on this same day was negative. The removal of the fluid from the ankle caused a marked relief of pain. On July 24, 0.3 gram of neoarsphenamine was given intravenously. The patient continued to improve slowly. There were no further attacks of rash or fever. Although the ankle remained somewhat tender and swollen for nearly a month, it eventually cleared up entirely. No sequelae or complications to the illness were noted. The accompanying chart gives the four-hourly temperature.

Bacteriology: 4 cc. of joint fluid were put into 100 cc. of infusion broth, to which about 2.0 cc. of normal human blood had been added. This gave growth after 48 hours at 37° C., which consisted of small, yellow, fluffy clumps on the surface of the blood layer. There was also darkening of the blood. The morphology of the organisms from this and from subsequent subcultures corresponded to the description of *Haverhillia multiformis* given by Parker[9]. It was gram-negative and non-acid fast. The organisms consisted of rods, usually straight but

occasionally fusiform, varying from 2 to 10 or 15 micra in length, and from 0.3 to 0.5 micra in width. The characteristic swellings in the rods were very striking. Occasionally, granular filaments and branched forms were seen. In its growth requirements, it corresponded to *Haverhillia multiformis*. On solid medium it would not grow unless it was in an atmosphere of increased CO_2 tension, produced by allowing a candle to burn itself out in a sealed jar. No growth was obtained on infusion broth or agar or on 0.1 per cent dextrose infusion broth or agar under any conditions. Very good growth took place on the egg-glycerine-potato medium described by Parker[9]. Blood or serum broth gave fair growth which was much improved by an increased CO_2 tension. Unfortunately, no strains of *Haverhillia multiformis* were obtainable nor were any agglutinating sera of known titre available. The serum of the patient, however, taken on July 24 agglutinated suspensions of the organism in a dilution of 1:512, while two normal human sera were negative in dilutions above 1:4. Proteus X19 was not agglutinated in dilutions above 1:16.



DISCUSSION

Haverhill fever (erythema arthriticum epidemicum) was first described in 1926 by Place, Sutton, and Willner[10], following their investigation of a milk-borne epidemic in Haverhill, Massachusetts. Later, Parker and Hudson[9] reported the isolation of the etiological agent, *Haverhillia multiformis*, cultured from the blood and joint fluid from several of the cases in Haverhill. Hazard and Goodkind[11] described a sporadic case occurring in Boston in which they could not identify the source of infection. Levaditi and coworkers[12] reported a case of fever and arthritis in a laboratory worker from whom they isolated an organism, *Streptobacillus multiformis*, which is probably similar or identical to the one described by Parker and Hudson. No mention is made of the source of infection in Levaditi's case. Hazard and Goodkind[11] suggested the possibility of rat bite playing an etiological rôle in sporadic cases of Haverhill fever. The case presented confirms their supposition. Furthermore, at that time there were no other known cases of Haverhill fever in the state.

The possibility still remains, of course, that this patient was actually suffering from two diseases, since the spirillum of rat-bite fever is notoriously difficult to identify. This possibility, however, we consider remote. The repeated dark-field examinations of the patient's blood and its injection into mice and guinea pigs should have revealed the spirillum. In addition, examination and injections of the blood, and liver, spleen, and kidney of the offending rat failed to show any disease of that animal. Finally, the arthritis, the lack of lymphadenitis, the healing of the site of the bite, and its failure to light up at each exacerbation of fever are not typical of rat-bite fever. The clinical course resembles much more that described for Haverhill fever.

The case is interesting from another standpoint. The infection followed the bite of a laboratory rat from a healthy colony which had been isolated for over three years. Two other similar cases were found in the literature. The report of Schottmüller's[1] makes no mention of the heredity or environment of the rat. Clearkin[13] describes an infection following the bite of a black rat and quotes from Bryan and Archibald's "Practice of Medicine in the Tropics" to the effect that "white rats do not carry the infection." There have been numerous instances of rat bite from this same rat colony, but this is the first to be followed by any results other than a strictly local and minor infection.

SUMMARY

A case of Haverhill fever is reported in a medical student, who was bitten by an albino rat. The bite was followed by a transitory lymphangitis, recurrent fever associated with morbilliform rash, and arthritis. Repeated blood cultures, dark-field examinations of the blood, and injections of the blood into mice and guinea pigs were negative. Culture of the joint fluid yielded an organism which was identified as *Haverhillia multiformis*. The patient's serum agglutinated this organism in high titre.

REFERENCES

1 Schottmüller, H.: Zur Ätiologie und Klinik der Bisskrankheit. Dermat. Wchnschr. 58: 77, 1914.
2 Blake, F. G.: The etiology of rat-bite fever. J. Exper. Med. 23: 39, 1916.
3 Tileston, W.: The etiology and treatment of rat-bite fever. J. A. M. A. 66: 995, 1916.
4 Dick, G. F., and Tunnicliff, R.: A streptothrix isolated from the blood of a patient bitten by a weasel. (Streptothrix putorii.) J. Infect. Dis. 23: 183, 1918.
5 Litterer, W.: A new species of streptothrix isolated in a case of rat-bite fever. J. A. M. A. 68: 1287, 1917.
6 Ebert, B., and Hesse, E.: Zur Klinik und Bakteriologie der japanischen Rattenbissfiebers (Sodoku). Arch. f. Klin. Chir. 136: 69, 1925.
7 Mackie, T. J., and McDermott, E. M.: Bacteriological and experimental observations on a case of rat-bite fever: Spirillum minus. J. Path. & Bact. 29: 493, 1926.
8 McDermott, E. M.: Rat-bite fever: A study of the experimental disease, with a critical review of the literature. Quart. J. Med. 21: 433, 1928.
9 Parker, F., Jr., and Hudson, N. P.: The etiology of Haverhill fever. (Erythema arthriticum epidemicum.) Am. J. Path. 2: 357, 1926.
10 Place, E. H.; Sutton, L. E., Jr., and Willner, O.: Erythema arthriticum epidemicum. Preliminary report. Boston M. & S. J. 194: 285, 1926.
11 Hazard, J. B., and Goodkind, R.: Haverhill fever. (Erythema arthriticum epidemicum.) J. A. M. A. 99: 534, 1932.
12 Lovaditi, C.; Nicolau, S., and Poincloux, P.: Recherches sur l'étiologie de l'érythème polymorphe aigue son agent étiologique: streptobacillus moniliformis. Comp. Rend. Acad. d. sc. 180: 1188, 1925.
Idem: Presse méd. 34: 340, 1926.
13 Clearkin, P. A.: A case of rat-bite fever contracted in the laboratory. Kenya & East African M. J. 5: 196 (Sept.) 1928.

PANCREATIC CYST

BY C. H. HAWES, M.D.*

PANCREATIC cyst is relatively uncommon. At Guy's Hospital[1] there were but four cases in 6,000 autopsies. Judd[2] found only forty-one cases of pancreatic cyst and pseudocyst in all the case records of the Mayo Clinic. Ritchie and MacLaren[3] at St. Paul found only five cases among all their operative cases. It is apparent that few surgeons have an opportunity to acquire extensive experience with pancreatic cysts and pseudocysts because of the rarity of the condition. MeWhorter[4] in 1925 compiled all cases of cysts of the pancreas from members of the Chicago Surgical Society and issued an exhaustive report classifying the cysts as follows:

1. Retention cysts, usually due to obstruction of the pancreatic duct or the smaller ducts or acini.

2. Proliferative cysts, due to proliferation of glandular epithelium followed by the accumulation of fluid. These are new growths occurring in two forms, cystadenoma and carcinoma.

3. Congenital cysts. These are very rare and are associated with cysts in kidneys and liver.

4. Hemorrhagic cysts, large single cysts which develop in the tail of the pancreas following hemorrhage from or in the substance of the organ.

5. Hydatid cysts, due to the embryo entering the blood stream by way of the digestive tract and lodging in the pancreas.

6. Dermoid cysts, which are almost never found in the pancreas. Judd[5], however, found one cyst of this type in his series and added this type of cyst to the classification.

7. Pseudocysts, due to degenerative changes of the interstitial tissue of the pancreas following fat necrosis. Lloyd[6] first called attention to the fact that many so-called pancreatic cysts were actually not in the pancreas itself, but were effusions in the bursa omentalis or lesser peritoneal sac. Fluid collects in the region of the gland after traumatism or inflammation. There is effusion from the capsule of the pancreas which seals the foramen of Winslow and both blood and pancreatic ferments escape into the lesser peritoneal cavity. The connective tissue proliferation from the inflammatory process forms a cyst wall. Pseudocysts usually arise from the anterior surface of the pancreas and may enlarge above the stomach, below the colon, or between the colon and stomach. In rare instances they are situated high above the stomach and can be reached only through the stomach wall. False cysts often attain considerable size and are sometimes incorrectly diagnosed as echinococcus cysts, ovarian cysts, hydronephrosis, or perinephritic abscess. Since they simulate these other affections, they should always be kept in mind in diagnosing obscure conditions of the upper abdomen.

From the accounts in the literature it is clear that clinical diagnosis is difficult, for pancreatic cyst does not produce a definite syndrome. The frequency of associated disease of the pancreas and gall bladder must be an important factor in the etiology. Ballin and Saltzstein[7] report a case in which a pancreatic pseudocyst formed four weeks after cholecystectomy was done for cholecystitis and pancreatitis. Some interference with the outflow of bile caused a recurrence of pancreatic inflammation with resulting leakage of bile and pancreatic secretions into the lesser sac. Gall bladder disease was present in seventeen of Judd's[8] forty-one cases. At the Truesdale Hospital there was but one isolated case of pancreatic pseudocyst in 103 cases of lesions of the pancreas. The case is of interest in that it sheds some light upon the origin of the lesion, the difficulty in making a correct preoperative diagnosis, and the method of surgical treatment.

CASE REPORT

Case No. 31831.

T. P., white, female, aged 63, was admitted to the Truesdale Hospital May 21, 1934 complaining that for the past six days she had been having severe abdominal pain, had vomited everything taken by mouth, and had been unable to move her bowels in spite of several enemata.

*Hawes, C. H.—Assistant in Surgery at the Truesdale Hospital and at the Fall River General Hospital. For record and address of author see "This Week's Issue," page 734.

For the past seven years the patient had been subject to attacks of severe cramp-like abdominal pains, sometimes accompanied by nausea and vomiting, and usually relieved by catharsis. Her general health remained good, however, and she was able to perform her ordinary household duties. At no time had she been jaundiced.

Seven weeks before entry she had a prolonged siege of incessant abdominal cramps, bloating of the entire abdomen, and increasing constipation. She was taken to another hospital where she remained four or five days and left this institution relieved of symptoms. X-rays taken at this time were "suspicious of cancer" but nothing more definite was determined.

From this time, April 1, 1934, until the onset of her present complaints she was able to do her usual housework and ate fairly well. She did not vomit and suffered less from constipation. Six days prior to admission she began to have very severe cramp-like pains in the mid-abdomen at four-minute intervals, described by her to be as severe as labor pains. Vomiting accompanied these attacks and persisted. The bowels did not move in spite of several enemata.

The history was otherwise negative. There were no urinary complaints, no cardiorespiratory complaints, and nothing to indicate pelvic abnormalities. The patient had lost a little weight during the week prior to admission. The past, family, and marital histories were normal.

At the time of admission physical examination revealed a well-developed and well-nourished but pale and somewhat sick-looking woman of sixty-three grimacing with abdominal pain. The temperature was 98 degrees rectally, pulse 100, and respirations 20. The skin showed no suggestion of icterus. The blood pressure was 140/80. The lungs were clear and resonant and the heart of normal size. Sounds were somewhat distant in quality but regular. No murmurs were heard.

Examination of the abdomen revealed a large mass in the right upper quadrant the size of a grapefruit, slightly tender and somewhat movable, which seemed to descend slightly with inspiration. Below the mass the entire abdomen was moderately distended, tympanitic, and tender.

Urine examination showed an acid reaction, specific gravity 1.035, the slightest possible trace of albumin, and no sugar. The sediment was negative except for four or five white blood cells per high-power field.

The blood examination was as follows:

Blood count:	Erythrocytes—3,530,000
	Leucocytes—7,000
	Hemoglobin—90%
Differential:	Neutrophiles—64%
	Lymphocytes—32%
	Basophiles—3%
	Eosinophiles—1%

No immature forms were seen.

The Kahn test was negative. The blood sugar was 100 mg. and non-protein nitrogen 26.4 mg. per 100 cc.

The case was puzzling. The preliminary diagnosis made was probable carcinoma of the transverse colon with intestinal obstruction.

Roentgen studies were then made. Flat plates of the kidney and bladder regions showed the indistinct outline of a soft tissue tumor which displaced the ascending and descending colon laterally and the transverse colon downward.

A barium enema was then attempted and the fairly well-filled colon was observed by fluoroscope. No intrinsic pathology was noted, but the colon was displaced by the mass in the upper abdomen. It was impossible to take films of the barium-filled colon because the patient vomited and expelled the barium. The impression of the roentgenologist was that the colon was normal.

On the day following admission with a preliminary diagnosis of carcinoma of the transverse colon, probably inoperable, intestinal obstruction and cholelithiasis, the patient was operated upon under spinal anesthesia. A right upper rectus incision was made. There was no free fluid in the peritoneal cavity. The omentum was studded everywhere with small yellow plaques, obviously fat necroses. Some of these showed calcification. The liver felt smooth and normal. The gall bladder was full of stones. A huge, fluctuant retroperitoneal tumor was encountered in the upper abdomen. On turning up the transverse mesocolon the pancreas was exposed. This organ was seen to be knobby and indurated, strongly suggestive at first of malignancy. The entire body of the pancreas or the lesser omental cavity appeared to be full of fluid.

Drainage of the gall bladder was considered but not done because of the condition of the patient. Therefore after the rest of the abdominal cavity was packed off, the pancreas was incised and a gallon of greenish-brown thin fluid suctioned out. In appearance the fluid suggested the presence of old changed blood and bile. A rubber tube was inserted into the cyst with rubber dam outside and the abdomen was then closed in layers about the drains. A small yellow plaque was excised from the omentum and sent to the laboratory. This showed fat necrosis. The postoperative diagnosis was pancreatic cyst.

Unfortunately no fluid was saved for examination. Analysis of the fluid, however, is probably of no value as a diagnostic aid. The presence of pancreatic ferments does not prove that the fluid is pancreatic in origin, for any cyst into which hemorrhage has occurred may contain these ferments. The presence of trypsin in large amounts is suggestive of pancreatic origin. Many of these cysts contain no ferments.

The patient made an uneventful recovery and was discharged on the nineteenth day after operation. The wound was well healed except for a small draining sinus. It was carefully explained to the patient's family that she would undoubtedly have future gall stone attacks and that at some later period it would probably become necessary to remove the gall stones.

As an interesting episode in the follow-up, about one week after the patient was discharged from the hospital, during which time she felt well and had resumed some of her lighter household tasks, she was awakened at 2:00 A.M. by a severe epigastric and right upper quadrant pain. Hot water bags were applied without relief, and finally one of us was summoned. One-quarter grain of morphia promptly relieved the patient. She had eaten pork for supper during the evening before this episode. Her wound at this time still showed a small sinus which drained only a small amount of fluid and was dressed once daily by the district nurse. Nothing has been heard from the patient since this time, but it seems inevitable that similar attacks will occur and that she must come to operation for removal of stones.

It is usually stated that such a cyst of the pancreas results from previous trauma to the pancreas or from chronic pancreatitis. It would appear that in this case the sequence of events is fairly clear: gall stones, an eventual chronic

pancreatitis with an acute attack, rupture of the capsule of the pancreas allowing pancreatic ferments and blood to escape into the lesser peritoneal cavity, inflammatory reaction resulting in connective tissue proliferation, and formation of a cyst wall. In this instance the wall no doubt connected directly with the necrotic and degenerated gland tissue.

TREATMENT

The method of surgical treatment depends upon the type of cyst and its location. Drainage, marsupialization and enucleation of the cyst lining when one is present, and partial or complete extirpation are the usual procedures. The first successful extirpation of a pancreatic cyst was by Bozeman[9] in 1882. Gussenbauer[10] advocated drainage as a correct surgical method and reported a successful case in 1883. Fitz[11] treated a case of multilocular cystoma in 1890 which he reported in 1900. As cases continue to be reported, results from drainage appear satisfactory. There were only four deaths in Judd's[12] series of forty-one cases, all due to other conditions such as nephritis, carcinoma, and myocardial failure. Casper[13] removed a large monolocular cyst from the anterior surface of the pancreas, then inverted the raw surface, rolled the pancreas in the shape of a tube and stitched it together. Coffey[14] did likewise and then connected the pancreas to the intestines. Finney[15] resected a small cyst from the mid-pancreas and sutured the two ends together. After extirpation of these cysts the denuded surface of the pancreas always presents a problem. Therefore complete extirpation is not practical in most cases; marsupialization and drainage through the anterior abdominal wall have sufficed to relieve symptoms except in rare instances when the cyst has refilled or the cyst wall has degenerated and become malignant, as in two of Friedenwald and Cullen's[16] seven cases.

According to Boyd[17], the presence of all three pancreatic ferments does not prove that the fluid is pancreatic in origin. Any cyst into which hemorrhage has occurred may contain ferments; moreover, the fluid aspirated from many of these cysts contained no ferments.

REFERENCES

1 Friedenwald, J., and Cullen, T. S.: Pancreatic cysts, with the report of seven cases. Tr. A. Am. Phys. 41:317, 1926.
2 Judd, E. S.: Cysts of the pancreas. Minn. Med. 4:75 (Feb.) 1921.
3 Discussion in Judd's article[2].
4 McWhorter, G. L.: Cysts of the pancreas. Arch. Surg. 11:619, 1925.
5 Judd, E. S.[2]
6 Lloyd, J.: Injury to the pancreas: a cause of effusions into the lesser peritoneal cavity. Brit. M. J. 2:1051 (Nov. 12) 1892.
7 Ballin, M., and Saltzstein, H. C.: Pancreatic cyst following cholecystectomy. J. A. M. A. 76:1484 (May 28) 1921.
8 Judd, E. S.[2]
9 Bozeman, N.: Removal of a cyst of the pancreas weighing twenty and one-half pounds. M. Rec. 21:46, 1882. (Quoted by Friedenwald and Cullen[1].)
10 Gussenbauer, C.: Zur operativen Behandlung der Pankreas-Cysten. Arch. f. klin. Chir. 29:355, 1883.
11 Fitz, R. H.: Multilocular cystoma of the pancreas. Tr. A. Am. Phys. 15:254, 1900.
12 Judd, E. S.[2]
13 Casper, M.: Pancreatic cyst: operation: recovery. Kentucky M. J. 28:15 (Jan.) 1930.
14 Coffey, from Casper, M.[13]
15 Finney, from Casper, M.[13]
16 Friedenwald and Cullen[1].
17 Boyd, W.: Surgical Pathology. Philadelphia: W. B. Saunders Co., 1925, pp. 375-376.

PROVISIONAL SUMMARY OF MORTALITY STATISTICS IN THE UNITED STATES: 1931, 1932 AND 1933

The Bureau of the Census announces that in 1933 in the United States there were 1,342,073 deaths from all causes, representing a mortality rate of 10.7 per 1,000 estimated population. This is the lowest death rate since the annual collection of mortality statistics was begun in 1900. With the admission of Texas in 1933, the Bureau is now able, for the first time, to publish deaths and death rates complete for the entire population of continental United States.

Of the 18 groups of causes of death into which a table prepared by the Bureau is divided, 11 show decreases in rates as compared with the previous year; 5 show virtually no change, and only 1, "diseases of the circulatory system," shows a significant increase. The cause within this group which showed the greatest increase, both in the number of deaths and in the death rate, was "diseases of the coronary arteries". The 1932 rate for diseases of the digestive system (73.6) shows a slight increase over that for 1932 (72.7), but both rates are lower than that for 1931 (79.8).

The death rate from "cancers and other tumors" has steadily increased during the past 15 years. In 1933, as in 1929, this increase was halted temporarily when the rates were slightly lower than for the next preceding years, 1932 and 1928, respectively.

Of the decreases in death rates for 1933 those for the following groups are noteworthy: "Infectious and parasitic diseases", "diseases of the respiratory system", and "diseases of the genitourinary system". The decrease for the first of these groups is largely accounted for by the drop in the number of deaths from influenza and tuberculosis. In the second group the decrease is attributable mainly to the lower rates for the pneumonias. The decrease in rate for the third group is in keeping with the decline during the last few years in the death rate from "chronic nephritis". The decrease in "diseases of pregnancy, childbirth, and the puerperal state" was approximately the same from 1932 to 1933, as from 1931 to 1932, and is due in large measure to the lesser number of deaths from puerperal albuminuria and eclampsia, and puerperal septicemia.

Although the rate for "violent and accidental deaths" was slightly lower in 1933 than in 1932, it will be found that within this group the rates for some of the individual causes, notably "homicide" and "automobile accidents", are higher.

Prior to the issuance of this summary, a table of deaths and death rates by principal causes was compiled for each state in the registration area. Copies of these state summaries are available upon request. —*Department of Commerce, Bureau of the Census, Washington.*

MEDICAL PROGRESS

PROGRESS IN LARYNGOLOGY

BY LEROY A. SCHALL, M.D.*

TONSILS

AFTER performing tonsillectomy on forty-one patients with endocarditis, Curtius, Dieker and Wirth[1] collaborate in an interesting paper on this procedure. In twenty-nine they removed the tonsils during the nonfebrile interval and in twelve during the acute attack. They found that tonsillectomy is readily accomplished during the acute attack, although hemorrhages and postoperative increases of temperature are more frequent than is the case in operations during the interval. Bacteriologic examination of the tonsils revealed hemolytic streptococci, particularly in the septic forms of the disease. In a case of endocarditis in which Streptococcus viridans was demonstrated in the blood, this organism was not demonstrable in the tonsils. In two patients with endocarditis, neither the blood nor the tonsils contained pathogenic microörganisms. The tonsillar microörganisms of two patients were examined for cardiotrophic behavior, but such behavior could not be proved. In eight cases of endocarditis lenta the tonsillectomy neither retarded nor checked the fatal course. Thirteen of twenty-three patients with endocarditis showed a disappearance of the cardiac symptoms together with the pharyngeal symptoms. Septic and rheumatic manifestations were favorably influenced in fourteen patients. In febrile florid endocarditis, tonsillectomy brought no advantages, and the authors think that it should be done during the interval, when the patient is free from fever. They observed that existing cardiac lesions often improved after tonsillectomy. However, they found that, if signs of decompensation existed before tonsillectomy was done, a continuous exacerbation may be expected. Involvement of the kidneys is no contraindication to tonsillectomy, but the renal symptoms as a rule were only slightly influenced by it. The subjective condition of the patients with endocarditis improved generally to the extent that the cardiac and pharyngeal symptoms improved. A discrepancy between the subjective and objective aspects could be traced in two patients to psychic factors.

Two cases are reported by Wilson and Darkes[2] in which the authors consider optic neuritis to have been due clearly to infection of the tonsils. The removal of the tonsils, in both cases badly diseased, produced prompt improvement and a return in a relatively short time to normal vision and a normal state of the involved nerve. If swelling of one or both optic nerves is the only physical sign present, and if the patient does not have headache or other symptoms suggestive of a tumor of the brain, he should not be rushed into submitting to encephalography, ventriculography or a decompression operation. Cases of the kind reported have probably helped to swell the number of cases referred to naïvely by the neurosurgeons as instances of "pseudotumor."

Mies[3] states that two main theories concerning the etiology of traumatic tonsillitis (tonsillitis after nasal operations) are presented in the literature. One regards traumatic tonsillitis as a secondary infection of the tonsils transmitted from the nose via the lymph channels; the other considers it as a primary surface infection of the tonsils determined by certain factors created by nasal tamponade. In general, a lymphatic connection between the nose and the tonsils is denied since the negative results of Schlemmer's experiments in 1921. Mies conducted experiments on guinea pigs to determine whether in the pathologic conditions produced by nasal tamponade the flow of lymph was altered. By unilateral nasal tamponade the disturbance of nasal breathing necessary for the occurrence of traumatic tonsillitis was produced. Following the injection of a dye into the nasal mucosa under these conditions, no dye could be demonstrated in the tonsillar tissue. In simple experimental injections into the mucosa of the nose and palate it was likewise impossible to detect any deposits of dye in the tonsils. This corroborates the results of Schlemmer. In both experimental series, particles of dye were sometimes found in the retrotonsillar tissue on the side into which injection had been made. Animal experiments do not support the assumption of a lymphatic connection between the nose and the tonsils. The Denker theory of the etiology of traumatic tonsillitis, which assumes a secondary infection of the tonsils from the nose via the blood stream, appears to be the most plausible and well-founded theory.

Rössner[4] states that tuberculosis of the tonsils is probably always a secondary infection, originating by the hematogenous or lymphogenous route or in the sputum. The hematogenous route is the most probable in the opinion of the majority of authors. Tonsillar tuberculosis usually assumes a light form, and in the majority of cases, it can be recognized only microscopically. Complications following the removal of tuberculous tonsils were rarely seen; in a few

*Schall, LeRoy A.—Associate Surgeon in Oto-Laryngology, Massachusetts General Hospital and Massachusetts Eye and Ear Infirmary. For record and address of author see "This Week's Issue," page 734.

cases the operation was followed by miliary tuberculosis. In the author's clinic, tuberculosis was found in three of 296 tonsils examined histologically, or 1.01 per cent. The statistics in the medical literature vary between five and 1.6 per cent.

Janse[5] reports six cases that could be and several that had been diagnosed as due to an enlarged thymus, whereas the lesion was entirely confined to the larynx and pharynx. In every infant with laryngeal symptoms a direct laryngoscopic examination should be made. In the majority of these cases the etiologic factor will be found in the pharynx and larynx rather than the thymus, as is so often reported. The thymus shadow is found enlarged in more than forty per cent of normal infants. The usual roentgenographic studies of the thymus are inaccurate and are apt to give false impressions. The size of the shadow of the thymus varies in the different phases of the cardiac and respiratory cycles. The author does not feel that deaths that occurred during or following anesthetics could be attributed to an enlarged thymus. Operation should be postponed and careful preoperative care should be given all patients who show evidence of infection of the upper respiratory tract, renal or cardiac disease, fever, marked anemia, malnutrition or any other condition that might increase the operative risk. The selection of a competent anesthetist cannot be too strongly advised. All allergic patients to be operated on should be tested for the anesthetic to be administered.

McKinney[6] reports a case of lymphosarcoma and one of epithelioma of the tonsil, that did well under high voltage x-ray and radium treatment.

Hara[7] reviews the literature and reports a case of fibroma of the tonsil.

In a very exhaustive study Salinger and Pearlman[8] present an excellent article on hemorrhage from pharyngeal and peritonsillar abscesses. They have collected a total of 227 cases and divided them into six groups; (1) Peritonsillar abscesses; (2) peritonsillar abscess complicated by involvement of the parapharyngeal space; (3) retropharyngeal abscess; (4) retropharyngeal abscess complicated by involvement of the parapharyngeal space; (5) parapharyngeal abscess and (6) cervical abscess. Of the total of 227 cases complicated by hemorrhage there were 154 in which ligation of the carotid artery was not required. Of these only thirty-six patients (23%) recovered. Ligation of the carotid was performed on seventy-two patients and forty-seven recovered (65%); fifty-four ligations of the common carotid artery with thirty-six recoveries (67½%). The high mortality in the cases in which ligation was not performed was shown in ninety autopsies to have been due to erosion of a larger vessel (the normal carotid artery in most cases) which had been involved in the suppurative process with resultant weakening of its walls and neurismal dilatation. On the basis of this study they sum up their discussion of the question of ligation of the carotid artery by stating that twenty-five per cent of all ligations of the common carotid artery regardless of age or ailment are accompanied by serious cranial complications of which at least one half are fatal.

One should not magnify the danger of ligation of the common carotid artery but when complicated with a serious hemorrhage or recurring hemorrhages, should rather consider the dangers and high mortality that may be expected from nonintervention and accept ligation of the common carotid artery as much the lesser of two evils. It, at least, offers a two to one chance for recovery as against almost certain death.

NOSE AND SINUSES

In a series of experiments to determine the effects of drugs upon the ciliary activity of the mucosa of the upper respiratory tract by Lierle and Moore[9], they find that when tap and distilled water are applied to the mucosa of the upper respiratory tract, slowing of the ciliary beat is caused. Three per cent ephedrine hydrochloride is not detrimental to ciliary activity but at times increases it slightly. Five per cent cocaine hydrochloride is not detrimental to ciliary activity, but ten and twenty per cent solutions produce definite slowing, with good recovery. Mild silver protein in concentrations of five, ten and twenty per cent produces an initial speeding of ciliary activity. This is followed by a slowing, which may be due to the water solvent rather than to the drug. Five-tenths per cent eucalyptol has no deleterious effect on ciliary activity. Five-tenths per cent menthol and, to a greater degree, one per cent menthol have a mildly depressing effect on ciliary activity. One per cent thymol, 0.5 per cent thymol and one per cent eucalyptol, in the order named, are definitely detrimental to ciliary activity. A 1:1,000 solution of epinephrine hydrochloride, two per cent zinc sulphate and two per cent mercurochrome, in the order named, are definitely detrimental to ciliary activity. Five-tenths per cent silver nitrate is immediately and fatally detrimental to ciliary activity. In no instance was it possible to start the cilia beating again after its application.

Allan[10] reviews the literature and presents a case of nasopharyngeal fibroma. It is surprising that Allan was able to find but 116 cases presented in the literature. His method of treatment is implantation of radon seeds into the base of the tumor.

Wachsberger[11] describes in detail the endonasal radical operation on the antrum (the Canfield-Sturman operation). He feels that this

procedure permits visibility of and accessibility to every part of the mucous membrane and allows surgical intervention in all its parts. Advantages claimed over the Caldwell-Luc operation are elimination of oral incision, no secondary plastic procedures needed, short operative time, less convalescence and less operative shock.

Proetz[12] contributed a paper on the microscopic examination of the sphenoid ostium. The bony part of the ostium comes to a sharp edge around which no structure except epithelium can be seen to pass from nose to sinus or from sinus to nose. The tunica propria of the sinus can scarcely be said to enter into the formation of the ostium as it terminates abruptly short of the margin and is very thin. The nasal mucosa on the other hand is many times thicker and is permeated with vascular channels and glandular elements and can be said to more properly enter into the formation of the ostium. The author feels that though the nasal and sphenoid sinus mucous membranes may respectively swell, only extreme tension can cause the tissues to encroach upon the ostium in such a way as to close it, that in inflammation, the nasal side of the ostium swells much more than the sinus side and that shrinking applications such as ephedrin to the neighborhood of the ostium should suffice to open it.

An article on increased intracranial pressure with a normal spinal fluid associated with disease in the pneumatic spaces of the head is contributed by Carmack[13]. The author is cognizant of the fact that this condition usually obtains as a complication of mastoid infection but cites one case of sphenoid and ethmoid infection cured by operation. The symptoms encountered are headache, drowsiness, papilledema and loss of vision, if allowed to continue unchecked. Meningeal symptoms are rare. The etiology and pathology remain obscure but there is probably excessive secretion from the choroid plexus, or defective absorption through the arachnoid villae due to a localized meningeal irritation or serous meningitis. Treatment should be directed toward elimination of the primary focus plus repeated spinal punctures.

Sewall[14] feels that cytologic study of the content of the sphenoid sinus is of definite value in rational sinus therapy. A sphenoid cannula, can with great regularity be placed in the sphenoid ostium with a little care, patience and practice. The cannula is fixed in position by an ingenious cannula holder attached to a tongue depressor held firmly between the teeth. A syringe is used to withdraw the sphenoid contents. At times it is necessary to inject sterile warm water which is immediately withdrawn and examined for bacteria and cells. The author examined 110 sphenoids. He was unable to enter twelve of these. Of the ninety-eight sphenoids entered, eight were clear, two contained pus, and flakes were found in eighty-eight. Upon examination, mononuclear leucocytes were found in fifty-seven cases; mononuclears and polymorphonuclears in seven; and polymorphonuclears in four cases. These results seem to furnish evidence of inflammation of an acute character in a small number of the cases examined, while many more showed a process essentially chronic.

Davis[15] presents two cases of lacrimal obstruction following intranasal antrum operations. In each case the opening into the antrum had been made above and below the attachment of the inferior turbinate. The lower end of the lacrimal canal had been injured. Both cases were successfully treated by West's operation.

Pordes[16] cites a case of acute purulent antrum sinusitis which died six days after puncture of the antrum for irrigation. The needle was inserted in the posterior third of the inferior meatus and entered the pterygopalatine fossa causing an abscess. Extensive drainage promptly done on discovery of the complication was of no avail. The infection had extended cranially and into the mediastinum.

A case report of a pin in the maxillary antrum removed by Caldwell-Luc operation is given by Wright and Gerrie[17]. The authors feel that the foreign body was probably lost in the antrum during a difficult tooth extraction years previously. A case of multiple foreign bodies removed by means of Caldwell-Luc operation from the maxillary sinus is reported by Horgan[18]. While feeding a piece of timber to a revolving saw, the patient was struck in the cheek by some object and rendered unconscious. One month later, the author removed two pieces of wood which completely filled the antrum. The wood pieces had started to germinate and had in fact thrown out many tendrils.

Chamberlin and Parry[19] report six cases of mucocele as a cause of proptosis. The authors point out that the displacement of the eye is the result of pressure caused by erosion of the orbital wall. The growth of a mucocele is very slow. Signs, symptoms, diagnosis and differential diagnosis are given. External operation is the treatment of choice. Removal of the tumor together with all the sinus mucosa is indicated. They insist that a large permanent opening from the frontal sinus into the nose for drainage is imperative.

Fox and Fabricant[20] deplore the many synonyms applied to the syndrome characterized by nasal obstruction, sneezing, a nasal discharge and a pale edematous mucous membrane. From both their clinical and histologic studies, they state that these synonyms describe neither the clinical nor histologic picture. Except for the frequent occurrence of an eosinophilia in the cellular elements found in the subepithelial tissues of the hyperesthetic patient, the cells are

similar to those found elsewhere in the body in chronic inflammation.

In a discussion of the treatment of subacute maxillary sinusitis, Blassingame[21] strongly advises irrigation of the antrum through the natural opening in the middle meatus. In his experience, he has no difficulty in finding the natural opening. He deplores the fact that it has not more widely been adopted as an easy office procedure.

Yates[22] discusses the problem of skull fractures involving the frontal sinus. This discussion is based on ten personal cases of the author, eight of which recovered following operation. The cases of fracture are grouped into three subheads, simple, simple compressed and compound comminuted. The third type is always operative. In the other two types, operation depends on whether the posterior wall of the frontal sinus is fractured. Rhinorrhea is a complication which usually demands operation.

The problems of headache and pain in inflammations of the nasal sinuses are discussed by Tilley[23]. When pain happens to a symptom of chronic inflammation of the nasal sinuses, its cause is frequently the retention of pathological secretion under tension. Pain or headache may be complained of, however, even when drainage is free. Referred pains are common. It is Tilley's experience that pain is more likely to be of the localized or of the referred variety when only one sinus is affected, whereas a general headache is more common when more than one air cell is inflamed. A discussion of referred pains from the separate sinuses follows. The author also believes in the theory of frontal vacuum headaches. Pain from involvement of the sphenoid sinus, vidian nerve and Meckel's ganglion are touched upon. In his summary and conclusions, Tilley emphasizes the importance of correct diagnosis in these conditions, especially when operative intervention is indicated.

Wodak[24] discusses the relation of pain due to pus in the sinuses and the neuralgic pain caused by the sinusitis. Ordinarily, the sinus pain lasts only so long as pus is present. The secondary trigeminal neuralgia generally clears up with the sinus process but has a tendency to last a little longer. The great influenza epidemic of 1933 caused many sinusitides which were marked by severe neuralgias, the latter persisting long after the sinus conditions had cleared up. Often there were extensions into other nerve regions; the occipital, brachial and vertex regions. From his observations, the author believes that the influenza virus has a special affinity for nervous tissue, especially that of the fifth nerve.

In an anatomical study of the frontal sinus, Van Alyea[25] found that he was able to catheterize the frontal sinus in fifty-five per cent of his cases by way of the frontal recess. In twelve to sixteen per cent of his cases by way of the infundibulum; and that in from twenty to twenty-five per cent the natural opening could be reached through the hiatus semilunaris. He concludes that catheterization of the frontal sinus through the natural opening is possible in most cases. Patients with frontal sinusitis treated by the irrigation method alone showed improvement and many times complete cure.

Treer[26] studied 307 cases of nasal polypus and found that in the great majority that maxillary sinus was practically normal. This confirmed Zuckerkandl's assertion that nasal polypi result from frequent inflammation of the nasal mucosa on the basis of predisposition. However, the inflammation of the nasal mucosa often extends into the sinuses and often produces hypertrophic inflammation of the accessory sinuses due to impeded drainage from the sinuses by nasal polypi. The development and cure of chronic and acute purulent and hypertrophic inflammatory processes of all the accessory sinuses are governed by the drainage conditions of the individual case.

Eadie[27] studied the relation of sinusitis to general infection. His conclusions were drawn from postmortem findings in 120 cases, and the clinical study of over 100 cases. Postmortem examinations revealed the presence of nasal sinusitis in eleven fatal cases of lobar pneumonia, and in sixteen out of a total of twenty-two cases of bronchopneumonia. Sinusitis was less frequent in pulmonary tuberculosis.

Snyder and his associates, Fineman and Traeger[28] have taken detailed stereoscopic x-rays of the sinuses as a routine measure in 386 cases of chronic arthritis. In ninety-three cases, sinusitis was proved to be present by a combined rhinologic and roentgenologic study of the sinuses. Only sixteen of the ninety-three patients were aware of the fact that they harbored disease of the sinuses. In the remaining seventy-seven patients, the sinusitis was of the silent or asymptomatic type. Rhinologic treatment of these patients resulted almost invariably in marked clinical improvement of the arthritis. The degree of arthritis bore no relationship to the degree of the improvement of the sinuses.

Hurd[29] believes that nasal sinusitis is often a cause of chronic arthritis. Sometimes these sinuses give no symptoms and can then be termed "silent" sinusitis. He reports ten cases of sinusitis operated on with favorable results for the arthritis. In this short series the tonsils were less important in the causation of the arthritis than the sinusitis. The author feels that surgical measures on the sinuses in these cases bring the best results. He claims that occasionally sinus pathology is the cause of asthma. Thorough sinus operations on such cases associated with proper vaccines made from the patient's own organisms sometimes result

in brilliant recovery from the asthma. Three cases are reported in detail to substantiate this claim.

Monson[30] reviews the various types of operation on the ethmoidal sinus and presents one of his own. He proposes a submucous elevation of the mucous membrane on the medial side of the middle turbinate, turning this flap of mucous membrane back and completing the ethmoid operation much as proposed by Mosher. The mucous membrane flap is then turned down to line the exenterated ethmoidal labyrinth. The advantage of this procedure, according to Monson, is, that there is no postoperative drying of the nose, nor is it affected by cold weather, with little or no tendency toward the formation of crusts.

Weldon[31] believes that sinus disease is not an etiologic factor in allergic asthma. Exceptions to this belief are observed in rare cases where the individual is sensitive to bacterial protein. Allergic asthma and sinus disease often are concomitant, each dependent upon the same etiologic factors. Sinus disease is an etiologic factor in asthmatic bronchitis, or asthma due to an infection.

Several hundred asthma patients were examined by Weille[32]. Of this group, forty patients were selected for treatment by means of sinus surgery. According to observations in the group studied, seventy-five per cent of the patients having asthma associated with sinusitis show a favorable local result in the nose following nasal surgery, but have only about a fifty per cent chance for relatively long-continued favorable changes in their asthma. The most favorable cases for surgical improvement in asthma are those with polypi in the nose and sinuses; patients that have thickened membrane or cysts in the sinuses are unfavorable subjects for such improvement. Indications for sinus operation in asthmatic patients include the following: (a) sinus disease demanding surgical treatment on its own merits; (b) recurrent head colds precipitating asthmatic attacks (the aim of surgery is to lessen the number of such colds); (c) attempt to interrupt the vicious downward cycle in the severe case of asthma by gaining even temporary relief; (d) cases in which removal of polypi or sinus irrigation yields temporary benefit.

A general discussion of sinus disease in children is presented by Fischbach[33]. He stresses the frequency of overlooked sinusitis in early life and states that sixty-five per cent of cases of adult sinusitis have their beginning in childhood. A plea for more careful and thorough examination for sinus involvement in children is made. The subject is discussed under four headings: focal infection, allergy, dietary, and contact with chronic infection in their environment. Some practical methods in handling each group are enumerated.

Bullen[34] studied 400 cases of chronic sinusitis with special reference to the incidence of asthma. Only 12.25 per cent of the cases had asthma indicating that chronic sinusitis per se is not a frequent cause of asthma. It is interesting that 72.6 per cent of the children showing cloudiness of the sinus had previously had their tonsils and adenoids removed. Satisfactory results were observed following intranasal medication and general supportive measures. A symposium on maxillary sinusitis which includes pathology, symptomatology, diagnosis and treatment, is contributed by Eggston, Fairbairn, Jones and Sulzman[35]. The classification of the pathological changes is based on the vascular changes in the mucous membrane and includes three varieties: first, hypertrophic or polypoid; secondly, atrophic or fibrotic-sclerotic characterized by an increase in the fibrous connective tissue in the stroma with thinning of the mucous membrane; and thirdly, a combination of the two. A detailed description of each type is given accompanied by many photomicrographs.

Houser[36] states that in malignant disease of the antrum an absolute diagnosis cannot be obtained without securing a biopsy specimen. The method of choice is to perform a Caldwell-Luc operation under local anesthesia in cases in which the observations are suggestive of antral tumor. This permits inspection of the sinus and the securing of biopsy material. If the interior of the sinus is negative for tumor, immediate closure is performed. In case the interior of the sinus has a suggestive but not definitely positive appearance, the wound is packed wide open. When the positive diagnosis is obtained, the patient received roentgen therapy over the antrum and the cervical lymphatic channels as a preliminary procedure. In his series of twenty-one cases, the author carried the dosage to the limit of cutaneous tolerance with high or low voltage roentgen therapy. The doses given to patients treated with high voltage therapy varied from 800 to 1,600 roentgens per portal. The factors were 200 kilovolts, a distance of 50 cm., 4 milliamperes and a 0.5 mm. filter of copper. Some of the patients received in addition an erythema dose of radium delivered through a 3 cm. radium pack, the filter being equivalent to 3 mm. of lead. After operation radium was placed in the maxillary sinus; the dosage in this series ranged from 300 to 4,000 milligram hours. Four of these patients, or nineteen per cent, are now living; one, thirteen years, one, five years; one, two years, and the other one, one and one-half years. The treatment followed depended largely on the status of the lesion. Six growths, when first seen, were so far advanced as to be considered inoperable.

All the patients, however, regardless of the condition existing when they were first seen, were treated with roentgen radiation and radium. When pain was marked, avulsion of the sensory root of the trigeminal nerve was performed or, if this operation was not considered proper, alcohol was injected into the second and third divisions. Radical removal of the upper jaw was performed in three: all had a recurrence and died within a year. In ten patients, radical operation was performed on the maxillary sinus involved. Three of the patients operated on received electrocoagulation of the lesion at the time of operation.

Orton[37] gives a detailed report of a patient with a peculiar hyperplasia of the uvula, posterior and anterior tonsillar pillars, the epiglottis, the aryepiglottic folds and both arytenoids. In reviewing the literature, Orton finds but seven other reported cases. The condition is unassociated with syphilis, rhinoscleroma, angioneurotic edema or tuberculosis. Microscopic study suggested it to be an idiopathic inflammatory reaction characterized by occlusion of the lymph vessels with lymphocytic and plasma cell infiltration. During the past year one case answering this description has been seen at the Massachusetts Eye and Ear Infirmary.

OSTEOMYELITIS

Hesse[38] discusses seven cases of osteomyelitis of the sphenoid all of which ended fatally. Histological examination of the affected parts was carried out in several instances. The etiology was different to some extent in each case. In cases 1 and 2, the cause of a cavernous sinus thrombosis and meningitis was found to be an osteomyelitis of the sphenoid bone secondary to an infection of one sphenoidal sinus. In case 3, the clinical signs pointed to a meningitis of an aural origin but the postmortem showed a sphenoidal sinus infection with an osteomyelitis of the sphenoid, and an intracranial extension from that region. In cases 4 and 5, the osteomyelitis of the sphenoid was secondary to an infection of the petrous bone. In case 6, the cavernous sinus thrombosis was secondary to middle-ear infection. The sphenoidal sinuses in this case were healthy. At autopsy in the latter case, the real cause of the cavernous sinus thrombosis was found to be a suppurating hematoma in the roof of the orbit around the bony fragments of a small fracture. The patient had knocked his head against a stair rod a few days before the onset of the illness. Osteomyelitis was found at the tip of the petrous in the right half of the sphenoid bone. In case 7, the etiology of the osteomyelitis of the sphenoid was in doubt. The cases form an interesting clinical group.

Mosher and Judd[39] contribute a very valuable paper on osteomyelitis of the frontal bone complicating frontal sinusitis. Seven cases were studied carefully, four of which recovered and three died. The microscopic histology of the bone together with many photomicrographs are included in the paper. The pathways of infection, the gross and microscopic pathology and the technique of operation for osteomyelitis are carefully detailed. The authors feel that edema of the skin and soft tissues of the forehead is the first sign of infection of the medulla of the bone and the periosteum and is a practical guide to the extent of bone to be removed. At operation two large triangular skin flaps give the best exposure. The authors advise that the bone removal should begin beyond the limit of the edema, generally at or near the hair line and be carried downward from normal bone to diseased bone. The x-ray does not give positive findings until necrosis occurs and therefore is not positive until a week or ten days after the edema is present. Therefore, one should not wait for positive x-ray findings but should operate at the first sign of edema. When the x-ray finally is positive, bone pathology has extended an inch or two beyond the area indicated in the x-ray. Extensive radical removal of all necrotic bone together with some of the adjoining normal bone offers the best chance of recovery. The article is commended for careful study.

BRANCHIAL FISTULA

Kleinert[40] reports a case of complete branchiogenic fistula with external and internal openings and also the cases of six patients presenting this condition who were operated on at the Massachusetts General Hospital and the Massachusetts Eye and Ear Infirmary during the years 1926 and 1931. From a study of these cases the author concludes that the true fistula is a complete tract which passes from an external opening just above the clavicle along the border of the sternocleidomastoid muscle and opens into the throat. It is present in the neck from birth. Microscopic examination shows that this fistulous tract is lined with squamous epithelium. These distinctive diagnostic points are all found in the case reported.

LARYNX

From anatomical studies Lemere[41] found that for all practical purposes the larynges of man and dog are identical. As a result of experimental work on the innervation of the larynx he has found that sectioning of the recurrent laryngeal nerve produces a partially adducted position of the corresponding vocal cord, which is stretched anteroposteriorly by the unparalyzed cricothyroid muscle. This partially adducted position of the cord is decidedly different from the cadaveric position which has always been associated with this type of paralysis. Abduction of the paralyzed cord is impossible. Bilateral sectioning causes severe dyspnea and

difficulty in swallowing and phonation. Sectioning of the external ramus of the superior laryngeal nerve produces relaxation of the corresponding vocal cord owing to paralysis of the ericothyroid muscle on that side. This interferes with phonation, but there is no dyspnea or difficulty in swallowing. Sectioning of both the recurrent nerve and the external ramus of the superior laryngeal nerve on one side results in complete position. With bilateral sectioning of both nerves, there result absolute aphonia and dyspnea on exertion. Swallowing is made possible by the action of the extrinsic laryngeal muscles. Section of the recurrent nerve on one side and of the external ramus of the superior laryngeal nerve on the other side produces a partially adducted position of the cord on the one side and relaxation of the opposite cord. There is hoarseness of phonation, but very little dyspnea or difficulty in swallowing. Sectioning of both recurrent laryngeal nerves and of the external ramus of the superior laryngeal nerve on one side produces complete paralysis of the cord on the latter side, with a partially adducted position of the cord on the other side. Phonation is impossible and there are marked dyspnea and difficulty in swallowing. Sectioning of the external rami of both superior laryngeal nerves and of the recurrent laryngeal nerve on one side produces complete paralysis of the cord on the latter side with relaxation of the opposite cord. Vocalization is coarse or impossible. There is some dyspnea and also some difficulty in swallowing. Partial paralysis of the recurrent laryngeal nerve, including beginning recovery from complete paralysis, leads to isolated abductor paralysis with dyspnea on exertion. The severe dyspnea of complete bilateral paralysis of the recurrent laryngeal nerves may diminish with time, owing to atrophy of disuse in the unaffected cricothyroid muscles. This produces a glottic picture and a functional result identical with those of complete denervation of the laryngeal muscles.

The modifications of Loré[42] of the laryngofissure operation are based on a minute study on forty cadavers, supplemented by operative experience. This operation is not recommended in advanced intrinsic cases of carcinoma. Local or general anesthesia may be used. If a preliminary tracheotomy is performed, two incisions are made in the midline. The incision for the tracheotomy is started at the lower border of the manubrium sterni. Should the length of the neck permit, the suprasternal space is avoided. The dissection is carried down in the midline to the pretracheal fascia and the isthmus of the thyroid, immediately below which the trachea will be opened. Before the tracheal rings are opened a few drops of from five to ten per cent solution of cocaine are injected directly into the trachea. All bleeding must be controlled and all clamps removed. The trachea is opened. If the operation is to be continued under general anesthesia, a curved metal tube attached to a rubber tube is introduced into the trachea and the anesthesia continued through it. The rubber tube is fixed to the incised skin by means of a suture, and light packing about the tube prevents leakage into the trachea. The thyrotomy skin incision is then made from the body of the hyoid bone to the upper border of the cricoid cartilage and down to the level of the superficial layer of the deep cervical fascia. The cartilage is cut through by means of the Clerf saw and the larynx is opened. A V-shaped incision is made in the thyrohyoid membrane. All bleeding points after removal of the mass are easily seen and ligated. Before the soft tissues and growth from the cartilage are dissected, a light gauze strip packing inserted into the trachea through the laryngofissure will prevent any secretions and blood from getting into the trachea. The dissection of the diseased tissue from the cartilage is best begun with a knife, the operator making sure that the plane of cleavage between the perichondrium and the cartilage is reached. A Freer separator or any thin blunt dissector is used to continue the separation. This dissection must go wide of the growth, especially in the subglottic area. Then by means of curved scissors the entire mass is removed, including with it or not, as the case may require, the vocal process or more of the arytenoid cartilage. The feeding tube is introduced through the nose before the larynx is closed. Before the wound is closed, all blood and secretions are aspirated from above the tracheal packing and the packing is removed. At no time has the author found it necessary to suture the incision in the thyrohyoid membrane. The two halves of the thyroid cartilage are allowed to come together. The muscles and then the fascia are brought together with interrupted sutures. The skin wound is closed by means of the so-called Stewart suture. A small gauze roll dressing is kept in place by means of stay sutures. The upper and lower parts of the tracheotomy wound are closed after a tracheotomy tube has been introduced and the usual dressings are applied. The tracheotomy tube is removed as soon as possible. While it is in place, careful and constant suction is to be used through it. All sutures are removed between the fifth and seventh days and the patient is allowed out of bed as soon as possible.

Kleinfeld[43] presents a paper describing a laryngeal cyst in a newborn child. He pleads that dyspnea, cyanosis, aphonia or dysphagia in a newborn infant should lead to a consideration of the possible presence of a laryngeal cyst. The diagnosis can be verified by roentgenogram and direct laryngoscopy. The incision of such a cyst is a simple and life-saving measure.

Myerson[44] discusses the symptomatology, diag-

nosis, prognosis and treatment of cysts of the larynx and reports three cases. The author states that simple incision or cautery puncture does not seem to be of value. Total removal is the only certain means of cure.

Gardner[45] reports a case of fracture of the larynx. In his study of the literature he advises that the diagnosis is not always easy. The most constant sign of this condition is emphysema and bloody sputum. X-ray may or may not be of value. Dyspnea may be urgent and death may occur before tracheotomy is performed. The mortality is high, perhaps in the neighborhood of thirty per cent.

Kleinfeld[46] reviews the literature and presents one case of myoblastoma of the larynx.

In the Mayo Clinic 713 cases of carcinoma of the larynx have been seen since 1910. In this same period four cases of sarcoma of the larynx have been seen. These form the basis of Figi's[47] paper. The symptoms are those of laryngeal new growth. Since many are pedunculated, show less tendency to infiltrate and metastasize later than does carcinoma, they remain operable for a considerably longer time.

In an excellent paper on tuberculosis of the larynx, Torin[48] advances the theory of invasion of the larynx by the tubercle bacilli through the blood or lymph channels. He concludes by stating that tuberculosis of the larynx has not received the attention it deserves because of the prevalent idea among general practitioners that little or nothing can be done to relieve the condition. Routine laryngologic examinations should be made in every case of pulmonary tuberculosis, since tuberculosis of the larynx is a common complication. Early diagnosis is essential to the successful treatment of this condition. In cases of chronic laryngitis which do not respond readily to removal of the etiologic factor, such as sinus infection or misuse of the voice, a careful study should be made to exclude a pulmonary focus. A disease of the larynx superimposed on a severe pulmonary tuberculous infection is tuberculosis of the larynx until proved otherwise. A larynx may heal while tuberculosis advances in the chest. The contrary rarely occurs. Patients with definitely diagnosed cases are best handled in a sanatorium for tuberculosis, where they are under constant observation. Patients with early cases may improve with vocal rest alone. The actual electric cautery, used in cases in which infiltration and ulceration are present, will relieve symptoms and sometimes result in cure. Biopsy and other surgical procedures for absolute diagnosis should be employed as a last resort, since such a procedure may light up an otherwise quiescent focus.

Clerf[49] reports on fifty-eight cases of malignant disease of the larynx treated with laryngofissure. There were five deaths from postoperative complications. Six patients died of intercurrent diseases. In eight there was a recurrence of the carcinoma. Seven of these died and one was treated by total laryngectomy. Thirty-five of these patients were free from carcinoma for three years.

Babcock[50] proposed the transplantation of aural cartilage into a skin flap to close laryngostomic fistulas. The use of the cartilage prevents the partial collapse of the trachea that sometimes follows plastic closures.

Helwig and Jaime[51] report a case of true laryngeal scleroma occurring in a Mexican youth, aged twenty, who was born and reared in Kansas City and who had never been away from that city. The author could find but one other recorded case occurring in a native American. It is, as they state, common in Central and Southeastern Europe. As to etiology, most writers associate scleroma with unhygienic conditions—being a disease of the "great unwashed".

ESOPHAGUS

Cleminson and Monkhouse[52] treated eighty-nine cases of carcinoma of the esophagus with radiation but the results were so disappointing that they wonder whether it is not actually harmful to treat these patients by the application of radon to the center of the growth and whether they might not live longer if their only treatment was a preliminary removal of all teeth followed by a gastrostomy. These patients do not seek advice until peripheral extension and early metastasis have made it impossible for radiation to reach the outlying parts of the growth with destructive strength. The suspicion arises that there may even be a certain danger of stimulation of the rate of growth at the periphery and that thus the end may be hastened rather than delayed. The average period of survival for the whole series was 5.6 months (for growths in the upper part 6.7 months, in the middle part 5.4 months and in the lower part 6.9 months). For the ten women it was 8.5 and for the seventy-nine men it was 5.2 months. The relation of history to the survival period suggests that a short history does not necessarily indicate that the case is more recent in the sense of being less advanced and so more amenable to treatment than one in which the history is longer. This suggestion is confirmed by a study of the survival times of patients grouped according to length of history.

Kegaries[53] demonstrated the submucous venous plexus of the esophagus in eight of sixteen cases by injection through the coronary vein of the stomach. The presence of a periesophageal plexus of veins was not demonstrated, but rather a system of large venous trunks with the absence of cross anastomoses. Conclusive evi-

dence of a channel of anastomosis between the portal and caval circulation at the cardio-esophageal junction in the absence of portal obstruction has been demonstrated. Results of other workers concerning a connection between the spleen and the esophageal veins through the veins that accompany the vasa brevia have been confirmed. From this work, the author concludes that the venous plexus of the esophagus is a vulnerable structure and hemorrhage may occur in conditions other than portal hypertension, such as cardiac decompensation, diseases of the spleen and trauma or ulceration of the esophagus.

Mosher[54] continues his research work by studying the pathology of 100 autopsy specimens of the esophagus. He summarizes that in addition to the old finding that fibrosis of the esophagus, especially of the terminal portion, is the result of infection from contiguous organs, it has been shown that fibrosis of isolated areas is fairly common especially in such chronic infections as arteriosclerosis. In infections of the blood stream, the esophagus is often involved to the extent of ulceration. In acute infections (pneumonia) the esophagus may be infected. Chronic infection, as shown by an infiltration of lymphocytes under the epithelium and in the glands and about the gland ducts, is also common. Dilatation of the subepithelial blood vessels is almost constant in diseases such as cirrhosis of the liver which impede the venous circulation. I have stated in previous papers that cirrhosis of the liver and infection of the gallbladder are among the chief causes of infections of the esophagus. As autopsy specimens of these conditions accumulate, this fact is becoming more and more evident. Hemorrhage into the muscular layers extensive enough to disrupt them may occur when there is back pressure on the esophageal vessels. The glands of the esophagus are especially liable to infection, and are probably the chief route by which the esophagus is infected from within. One form of solitary follicle is simply a collection of lymphocytes following a gland duct to the surface. The esophagus, to recapitulate, can be infected from within and from without, and is often infected in both acute and chronic diseases. In the esophagus, fibrosis follows infection, as it does in other organs of the body. As the esophagus is so frequently infected, there is abundant cause for strictures or fibrosis to occur in any part.

REFERENCES

1 Curtius, F.; Dieker, W., and Wirth, E.: Die Tonsillektomie bei Endokarditis. Munch. med. Wchnschr. 81: 89 (Jan. 19) 1934.

2 Wilson, G., and Darkes, W. F.: Unilateral choked disk due to chronic tonsillar infection. J. A. M. A. 100: 1233 (April 22) 1933.

3 Mies, C.: Experimenteller Beitrag zur Frage der Angina traumatica. Arch. f. Ohren-, Nasen- u. Kehlkopfh. 135: 52 (May 17) 1933.

4 Rössner, Therese: Frequency and significance of tuberculosis of the tonsils. Arch. f. Ohren-, Nasen- u. Kehlkopfh. 135: 214 (July 14) 1933.

5 Janse, H. M.: Otolaryngologic conditions wrongly attributed to an enlarged thymus. Ann. Otol. Rhin. & Laryng. 42: 1110 (Dec.) 1933.

6 McKinney, Richmond: Treatment of malignant disease of the tonsil with high voltage x-rays and radium. Arch. Otolaryng. 18: 40 (July) 1933.

7 Hara, H. J.: Benign tumors of the tonsil with special reference to fibroma. Arch. Otolaryng. 18: 62 (July) 1933.

8 Salinger, Samuel, and Pearlman, S. J.: Hemorrhage from pharyngeal and peritonsillar abscesses, report of cases, résumé of literature and discussion of ligation of carotid artery. Arch. Otolaryng. 18: 464 (Oct.) 1933.

9 Lierle, D. M., and Moore, P. M.: Effects of drugs on ciliary activity of mucosa of upper respiratory tract. Arch. Otolaryng. 19: 55 (Jan.) 1934.

10 Allan, William Brewster: Nasopharyngeal fibroma. Arch. Otolaryng. 19: 216 (Feb.) 1934.

11 Wachsberger, A.: Endonasal radical operation on antrum. Arch. Otolaryng. 17: 222 (Feb.) 1933.

12 Proetz, Arthur W.: The minute anatomy of the sphenoid ostium. Trans. Am. Laryng. Assoc. P. 125, 1933.

13 Carmack, J. W.: Relation of increased intracranial pressure to disease in pneumatic spaces. Ann. Otol. Rhin. & Laryng. 42: 364 (June) 1933.

14 Sewall, E. C.: Cytologic study of diseases of sphenoid sinus. Ann. Otol. Rhin. & Laryng. 42: 391 (June) 1933.

15 Davis, E. D. D.: Two cases of lachrymal obstruction following antral operation (skiagrams shown). Proc. Roy. Soc. 26: 241 (Jan.) 1933.

16 Pordes, M.: Complication following puncture of antrum. Monatschr. f. Ohrenh. 67: 692 (June) 1933.

17 Wright, R. P., and Gerrie, J. W.: Pin in maxillary antrum. Canad. M. A. J. 28: 65 (Jan.) 1933.

18 Horgan, J. B.: Multiple foreign bodies in the maxillary antrum. J. Laryng. & Otol. 48: 52 (Jan.) 1933.

19 Chamberlin, William B., and Parry, Thayer L.: Mucocele as a cause of proptosis; report of 6 cases. Arch. Otolaryng. 18: 172 (Aug.) 1933.

20 Fox, Noah, and Fabricant, Noah D.: Hyperesthetic rhinitis. Arch. Otolaryng. 18: 181 (Aug.) 1933.

21 Blassingame, C. D.: Treatment of subacute maxillary sinusitis. J. Tennessee M. A. 26: 439 (Oct.) 1933.

22 Yates, E. C.: Management of skull fractures involving the frontal sinus. Kentucky M. J. 31: 362 (Aug.) 1933.

23 Tilley, H.: Remarks on headache and pain in inflammation of nasal sinuses. Brit. M. J. 1: 549 (April) 1933.

24 Wodak, E.: Nasal accessory sinus disease followed by trigeminal neuralgia, characteristic of recent influenza epidemic. Med. Klin. 29: 676 (May 12) 1933.

25 Van Alyea, O. E.: Irrigation in the treatment of disease of the frontal sinus; anatomic clinical study of nasofrontal connections. Arch. Otolaryng. 19: 224 (Feb.) 1934.

26 Treer, J.: Relation between nasal polypi and hypertrophic inflammation of accessory sinuses. Monatschr. f. Ohrenh. 67: 1065, 1933.

27 Eadie, C. M.: Nasal sinusitis in relation to general infection. M. J. Australia. 1: 637, 1933.

28 Snyder, R. G.; Fineman, S., and Traeger, Cornelius: Importance of roentgenologic examination of the sinuses in chronic arthritis. Arch. Otolaryng. 19: 23 (Jan.) 1934.

29 Hurd, L. M.: The nasal accessory sinuses as foci of infection in chronic arthritis. Ann. Otol. Rhin. & Laryng. 42: 39, 1933.

30 Monson, L. P.: A new intranasal operation on the ethmoid sinus. Arch. Otolaryng. 19: 40 (Jan.) 1934.

31 Weldon, W. A.: Relation of nasal sinuses to asthma. Kentucky M. J. 31: 360 (Aug.) 1933.

32 Weille, F. L.: Studies in asthma; surgical treatment of chronic sinusitis in asthma. J. A. M. A. 100: 241, 1933.

33 Fischbach, V. W.: Sinus disease in children. West Va. M. J. 29: 145, 1933.

34 Bullen, S. S.: Incidence of asthma in 400 cases of chronic sinusitis. J. Allergy. 4: 402, 1933.

35 Eggston, A. A.: Maxillary sinusitis; pathology. New York State J. Med. 33: 508, 1933.

Fairbairn, J. F.: Maxillary sinusitis—symptomology. New York State J. Med. 33: 515, 1933.

Jones, Marvin: Diagnosis of maxillary sinusitis. New York State J. Med. 33: 517, 1933.

Sulzman, F. M.: Maxillary sinusitis—treatment. New York State J. Med. 33: 519, 1933.

36 Houser, K. M.: Diagnosis and treatment of primary malignant neoplasms of maxillary sinus. Arch. Otolaryng. 18: 643 (Nov.) 1933.

37 Orton, Henry Boylan: A peculiar form of hyperplasia of the mucous membrane of the upper respiratory tract. Arch. Otolaryng. 18: 809 (Dec.) 1933.

38 Hesse, W.: On the etiology of osteomyelitis of the sphenoid bone. Arch. f. Ohren-, Nasen- u. Kehlkopfh. 137: 94, 1933.

39 Mosher, H. P., and Judd, D. K.: An analysis of seven cases of osteomyelitis of the frontal bone complicating frontal sinusitis. Laryngoscope. 23: 153, 1933.
40 Kleinert, Margaret Noyes: Branchial fistula. Arch. Otolaryng. 18: 510, 1933.
41 Lemoine, Frederick: Innervation of the larynx. Arch. Otolaryng. 18: 413 (Oct.) 1933.
42 Lord, J. M.: Suggested modifications of the laryngofissure operation. Ann. Otol. Rhinol. & Laryng. 42: 1205 (Dec.) 1933.
43 Kleinfeld, Louis: Laryngeal cysts in the new-born. Arch. Otolaryng. 19: 590 (May) 1934.
44 Myerson, Merwin C.: Cysts of the larynx. Arch. Otolaryng. 18: 281 (Sept.) 1933.
45 Gardner, H. O.: Fractures of the larynx. Arch. Otolaryng. 18: 449 (Oct.) 1933.
46 Kleinfeld, Louis: Myoblastoma of the larynx. Arch. Otolaryng. 19: 551 (May) 1934.
47 Figi, Frederick A.: Sarcoma of the larynx. Arch. Otolaryng. 18: 21 (July) 1933.
48 Torin, David L.: Tuberculosis of the larynx. Arch. Otolaryng. 19: 195 (Feb.) 1934.
49 Clerf, Louis H.: Carcinoma of the larynx. Arch. Otolaryng. 19: 653 (June) 1934.
50 Babcock, W. Wayne: Plastic closure of laryngostomic fistulas. Arch. Otolaryng. 19: 585 (May) 1934.
51 Helwig, F. C., and Jaime, Nicholas: Laryngeal scleroma in native Missourian; report of case. Arch. Otolaryng. 18: 310 (Sept.) 1933.
52 Cleminson, F. J., and Monkhouse, J. P.: Carcinoma of the esophagus treated by radiation. J. Laryng. & Otol. 49: 313 (May) 1934.
53 Kegaries, D. L.: Vencus plexus of oesophagus. Surg. Gynec. & Obst. 58: 46 (Jan.) 1934.
54 Mosher, Harris P.: Involvement of the esophagus in acute and in chronic infection. Arch. Otolaryng. 18: 563 (Nov.) 1933.

INTERNATIONAL MEDICAL ASSEMBLY

Interstate Postgraduate Medical Association of North America in Coöperation with the Eastern Postgraduate Medical Association, the Medical Society of the State of Pennsylvania and the Philadelphia County Medical Society as Hosts

About 7,000 doctors from all over the United States and Canada, but more particularly from the eastern states, will come to school in the great, new Municipal Auditorium in Philadelphia commencing November 5.

The occasion will be the first International Assembly of the Inter-State Postgraduate Medical Association of North America to be held east of the Alleghenies. The actual dates are November 5 to 9, with clinic days November 3 to 10.

Many of the leading medical men of the United States and Canada, with five experts from abroad, will take part in the work of giving to the doctors of the country, both general practitioners and specialists, the latest information on developments in surgery and medicine.

This new type of medical meeting has been developing in the Middle West in the last twenty years. Drs. William J. and Charles H. Mayo, of the Mayo Clinic of Rochester, Minnesota, and Dr. George W. Crile, of Cleveland, have been instrumental in bringing the assembly to its present high state of efficiency. Dr. William J. Mayo was president last year and Dr. John M. T. Finney, professor of Clinical Surgery at Johns Hopkins University School of Medicine, Baltimore, is president this year. The president-elect is Dr. Charles H. Mayo. Dr. Crile is chairman of the program committee.

Cities such as Chicago, Cleveland, Detroit, St. Louis, Kansas City and Milwaukee have entertained the assembly. Seventy-five hundred doctors attended the sessions in Kansas City.

The main object of the meetings is to provide an intensive postgraduate course in the various branches of medicine. The program, consisting of addresses and diagnostic clinics, is carefully arranged to meet the needs of the general practitioner and is prepared with extreme care.

The program is long and comprehensive. Attention is directed to important advances made in the various fields of medicine, including surgery and the medical specialties. The sessions last from 8 to 12 A.M., from 1 to 5, and 7 to 10 P.M.

Speakers appear by invitation only. They represent, according to Dr. Crile, "a floating medical faculty" for graduate instruction, comprised of distinguished teachers of the best medical schools in the country. The sole basis for choice is their ability to instruct the practicing physician. Many medical leaders participate annually because of their very special knowledge of the needs of doctors and their ability to instruct. In addition certain speakers are chosen infrequently for their special work on certain medical subjects which will appeal to the practitioner.

The audience represents younger men with ambition and initiative, who will become eventually the leading doctors of their communities. It gathers some thousands strong at eight in the morning and is still there in equally large numbers at ten in the evening.

The assembly devotes its entire time to matters pertaining to the sciences and to the practice of medicine. It meets in one great body, not in divided sections. The speakers bring their message to general practitioners and to specialists alike. The organization is under the supervision of a general manager, Dr. William B. Peck, of Freeport, Ill., and a group of counselors.

Many Philadelphia doctors will participate. The subjects covered will include the advances made in medicine, in surgery, in obstetrics, in the diseases of men, of women and children and in the specialties of the diseases of the eye, ear, nose and throat. Attention will be paid to the advances in certain fields of endocrinology, radiology and in serum and vaccine therapy. Special consideration will be given to the diseases of the gastro-intestinal tract, of the blood and of the heart and vascular system. Approximately half of the program will be devoted to diagnostic clinics and the remainder to addresses.

Any doctor who is a member of a county medical society is eligible to attend the assembly and need not register until his arrival. An exhibition of modern appliances, moving pictures and other demonstrations will be held in connection with the meetings.

Massachusetts will be represented in the program by Dr. Frank H. Lahey, Dr. Elliott C. Cutler, Dr. William C. Quinby, Dr. Henry A. Christian, Dr. Elliott P. Joslin, Dr. James H. Means, Dr. George R. Minot and Dr. Richard B. Cattell.

The full program may be consulted at the *Journal* Office.

CASE RECORDS
of the
MASSACHUSETTS GENERAL HOSPITAL

ANTE MORTEM AND POST MORTEM RECORDS AS USED IN WEEKLY CLINICAL-PATHOLOGIC EXERCISES

EDITED BY RICHARD C. CABOT, M.D.

CASE 20421

PRESENTATION OF CASE

A seventy year old American widow entered the Emergency Ward with the complaint of left-sided abdominal pain of twelve hours' duration.

She had not been in good health for the past two years although she had been up and around. Occasionally she had a feeling of weakness as well as intermittent nausea and vomiting. During the week before entry she vomited more frequently, losing about one meal daily. She had no definite pains until twelve hours before entry, when she suddenly developed severe pain in the left lower quadrant and flank. The pain was localized and colicky, coming in definite waves and causing her to double up and toss around in bed. She vomited about three times that day. The vomitus was not bloody. During that afternoon she fainted twice. Her bowel movements had been regular, occurring daily with the aid of laxatives. The last movement occurred about thirty minutes before admission. The stools were not bloody or clay-colored. She had been incontinent for the past several months.

Her family history was not obtained.

Two years before entry she developed sudden abdominal pain in the right lower quadrant. She was taken to a hospital where an exploratory laparotomy was performed. A solitary stone was found in the gall bladder. Nothing was removed. For the past two years she had some shortness of breath on exertion but no edema. Recently she had intermittent coughing spells and produced some phlegm which was questionably blood-streaked at times.

Physical examination showed an elderly moderately obese woman tossing in bed with her hand placed over the left flank and lower quadrant and crying out with pain. The heart and lungs were negative. The blood pressure was 135/90. The abdomen was obese. There was exquisite tenderness throughout the left abdomen, flank, and costovertebral angle, most marked in the left upper quadrant and costovertebral angle. There was a firm, smooth, resistant, tender mass palpable just below the left costal margin, extending over toward the midline and down toward the left lower quadrant, where the borders could not be definitely determined. Pulsations were present, presumably transmitted from the aorta. There was a large area of dullness over the left upper quadrant and flank. During the examination, waves of colicky pain occurred every few minutes. The pain was located primarily in the left lower quadrant and toward the flank, without definite radiation. Peristalsis was present and unchanged during these attacks. There was tenderness in the left lower quadrant by bimanual examination.

The temperature was 98.7°, the pulse 98. The respirations were 30.

Examination of the urine showed a slight trace of albumin, 20-25 hyalin and granular casts per low power field and an occasional white blood cell and red blood cell. Examination of the blood showed a white cell count of 24,600. A Hinton test was not done.

About two hours after admission the patient showed early signs of shock. The hands were cold and definitely clammy, and the pulse became weaker. Shock treatment was begun. Within an hour she was in profound shock, with the blood pressure at about 50 systolic. A transfusion of 500 cc. was given without much improvement. She failed very rapidly and died about three hours after admission.

DIFFERENTIAL DIAGNOSIS

DR. ARTHUR W. ALLEN: After reading this history one wonders what illness with a story of that sort could prove fatal in such a short period of time. The colicky character of the pain localized as it was in the left lower quadrant is extremely suggestive of something in the large bowel. Then we find that she has had no difficulty with her bowels at all—many people take laxatives. The fact that there had been no blood in her stools, with normal bowel movements, makes it fairly unlikely that the lesion was in the large bowel. Later on, in the physical examination, we see that the peristalsis was normal to the stethoscope, and unchanged during her attacks of colicky pain. It is not at all uncommon for an elderly person to have an exploratory laparotomy for abdominal pain on the basis of constipation alone.

We find that there is a solitary stone in the gall bladder and we wonder whether this may have been the cause of her digestive symptoms for the past two years. We are bound to think of the possibility of this stone having eroded into the gastrointestinal tract and producing intestinal obstruction, which does occur. On the other hand we find it hard to believe that this woman had intestinal obstruction.

Her shortness of breath on exertion at the age of seventy does not seem to me particularly relevant. I do not know what her coughing spells mean. Perhaps a medical man will tell us about them.

The physical examination shows a common enough picture; but we ordinarily do not see this type of patient expiring about three hours after admission. With an obese patient one would naturally consider diverticulitis; but with acute diverticulitis we do not have normal peristalsis and normal bowel movements. Diverticulitis sufficient to cause this patient to be brought into the hospital I believe would have given us a different picture regarding her peristalsis, mass and other physical signs.

This woman was obese and there was not very much doubt about her having a mass. A mass in an obese person is not always easy to feel. There was no question about the tenderness in this region, and apparently there was a large area of dullness. Now we come down to the question of pulsation. One wonders how often a mass in an obese individual will transmit pulsations from the aorta. Frequently enough in a thin patient we get pulsations, from the aorta to the surface, that are easily recognized. Nothing is said about the extension of this pulsation. During the examination the waves of peristalsis were not changed. That in itself rules out intestinal obstruction. If that observation is correct, this patient cannot have had intestinal obstruction. In intestinal obstruction the peristaltic waves are very definite; they can be heard not only with a stethoscope but frequently without the aid of a stethoscope. What could give this patient colicky pains? It must be one of the common reasons: the uterus trying to expel a fibroid within its cavity will give colicky pain; an intestine trying to move fecal material will cause colicky pain; and colicky pains may arise from the ureter. Pain may become more severe at intervals and not be true colic.

We have here a high leucocytosis in a person with a normal temperature.

The urine examination does not seem to me to throw any particular light on the diagnosis. One would expect albumin in a woman of seventy, and casts as well. There is certainly no gross blood in the urine, and no pus.

The whole thing boils down to a patient who had not been well for two years, with some indigestion, some nausea and vomiting, some dyspnea on exertion, and with an exploratory laparotomy two years before admission, at which time a gall stone was found in the gall bladder and not removed. She had been up and around, had not been quite so well for a week before admission, vomited a little more frequently, and twelve hours before admission she became acutely ill. She was finally brought into the hospital, still in reasonably good condition on her arrival, not in extremis; then suddenly she went into collapse and shock and died within an hour after the onset. In other words, we have a case of sudden death.

The causes of sudden death are not very numerous; cardiac death, pulmonary embolus, cerebral disaster, and hemorrhage. I think this probably was not a cardiac death. It probably was not a pulmonary embolus, and it probably was not cerebral in character. If this were a hollow viscus with a subacute perforation with extravasation of an abscess into the peritoneal cavity, we would not have had such a sudden exodus. We might have a sudden collapse but the patient would live hours rather than die within sixty minutes after the attack came on. The story of nausea and vomiting and the more definite symptoms lasting a week prior to admission would make one very strongly consider the possibility of pancreatitis. Against pancreatitis is the fact that there is no history of pain prior to admission. She had no pain until twelve hours before admission and pancreatitis does not kill in a matter of twelve hours. It might work itself up to a fatal stage within a week and we might perfectly well find a mass such as is described here with pancreatitis, and we might have exodus shortly after admission from erosion of a large vessel. The temperature in pancreatitis might be found at a normal level but it would be high the next time it was taken and down again and up again. The high leucocytosis would fit perfectly well with pancreatitis as a diagnosis. The fact that she had no marked pain prior to twelve hours before admission makes me think that this probably was not pancreatitis. I do not know what this mass was that was felt in the abdomen, whether it was truly a mass, but I am intrigued by the fact that pulsation could be felt through it, and with the sudden exodus I am inclined to think that this patient had a dissecting aneurysm of some sort which had not broken from its confines until she came in here and then, when it finally let go, death occurred quickly. Of course this mass extending over the left border could have been the spleen but I see no reason to think that it was.

DR. GEORGE W. HOLMES: This portable film was taken for a definite purpose, to show the presence or absence of free air in the abdominal cavity; it does not show it.

DR. TRACY B. MALLORY: I think we are ready for suggestions from the audience.

DR. EDWARD D. CHURCHILL: I should agree with the diagnosis offered by Dr. Allen of dissecting aneurysm of the abdominal aorta, presumably on an arteriosclerotic basis.

DR. MALLORY: How about some of the medical men, have you any suggestions?

DR. JACOBSON: I should like to ask Dr. Allen how he accounts for the colicky pain.

DR. ALLEN: It is not uncommon when the gastrointestinal tract is irritated by outside pressure to get exaggerated peristalsis. Once in a while in extensive tumors we do get colicky pain.

DR. WYMAN RICHARDSON: May I offer a di-

agnosis of perforated diverticulitis with intra-abdominal hemorrhage.

DR. WALTER BAUER: I would take exception to what Dr. Allen and Dr. Churchill said because I think dissecting aneurysms give pain which is very severe and very constant, and I think the type of pain which this patient complained of was large bowel pain. I think the most likely diagnosis is diverticulitis with perforation and hemorrhage and probably peritonitis.

DR. ERNEST M. DALAND: I saw this patient just before the final collapse. She was examined by four or five men. She was very tense and did not want anyone to touch her abdomen. She had excruciating pain scattered mostly over the left upper quadrant. When I examined her she had tenderness in the right upper quadrant and I could not help thinking about the exploratory laparotomy and gall stone that had not been removed and I leaned toward pancreatitis or pancreatic cyst. This mass felt like a cyst over the head of the pancreas. It was extremely tense, but I do not remember about the transmitted pulsation. I cannot say any more because I know the diagnosis.

DR. WILLIAM SNYDER: I think we might call attention to the fact that this mass seemed to increase in size after the patient arrived. It was about the size of a grapefruit and was in the left flank. As the minutes and hours went on, it seemed to increase in size.

CLINICAL DIAGNOSES

Abdominal tumor.
Retroperitoneal malignancy or abscess?
Renal tumor with obstruction?

DR. ALLEN'S DIAGNOSIS

Ruptured dissecting aneurysm of the abdominal aorta.

ANATOMIC DIAGNOSES

Rupture of aneurysm of abdominal aorta.
Aortitis, luetic.
Cholelithiasis.
Pleuritis, chronic fibrous.
Pulmonary edema.
Chronic vascular nephritis.
Ventral hernia.
Ascites, hemorrhagic.

PATHOLOGIC DISCUSSION

DR. MALLORY: I have to find for the surgeons as against the medical men in this case. The history was presented exactly as it was given in the emergency ward and I think it was fair to put it up to Dr. Allen as the actual problem which confronted the man on the emergency ward service when he was called in to see this case. Some three weeks later we got some additional history that was entirely unknown at the time of death. At the previous operation at which she had been explored, a mass had been found in the posterior wall of the abdomen about which she had not been told anything and consequently could not include in telling her story. This finding was a definitely pulsating mass overlying the vertebral column which was recognized during the operation as an aneurysm.

At autopsy we found a very large aneurysm of nearly the entire length of the abdominal aorta. On its anterior surface was a small slit about two centimeters in length from which an enormous amount of blood had flowed out into the retroperitoneal tissues, particularly to the left of the midline. The peritoneal cavity was practically free from blood: nearly all the hemorrhage was in the retroperitoneal tissues, and I think it is very improbable that the intestines were in any way influenced by the process. On the other hand the hematoma completely surrounded the left kidney and left ureter and I think Dr. Allen's guess that the ureter might occasionally be the cause of colicky pain may have been justified in this case; otherwise I have no possible explanation for its colicky character.

The other findings of the autopsy were all essentially unimportant. The heart was not enlarged. The kidneys were very slightly smaller than normal. There was a quite marked degree of arteriosclerosis, and the solitary gall stone which had been felt two years before was still present in the gall bladder.

As to the etiology of this aneurysm, it was not a dissecting aneurysm; it was a large tubular aneurysm dilating uniformly the entire abdominal portion of the aorta, of the type usually seen in lues. Microscopic sections of the wall showed a very slight infiltration of lymphocytes about the vasa vasorum and slight foci of degeneration in elastic tissue, but the picture is consistent with a luetic process though not a particularly active one. She was in the hospital such a short time that a Hinton reaction was never done.

CASE 20422

PRESENTATION OF CASE

First admission. A forty-nine year old Armenian laborer entered complaining of abdominal swelling of three weeks' duration.

Three weeks before entry the patient noticed that his abdomen was becoming distended. This distention steadily progressed until admission. Associated with this distention he also noticed that the intake of foods, particularly fluids, produced belching. He had lost about four pounds in weight. He had no other complaints. There

was no history of change of color of his skin or stools. He had not noted any edema of his ankles. There was no history of dyspnea, orthopnea, precordial pain, nausea or vomiting.

His family and marital histories are noncontributory.

Since the age of fifteen he had been a moderately heavy drinker of alcoholic beverages. He drank approximately one to three pints of heavy liquor per week.

For the past three years he had slight constipation requiring "salts" about twice a week. He had nocturia one to three times for the past five years. Since the onset of the present illness, however, he had noticed a diminished output of urine both day and night.

Physical examination showed a swarthy hollow-cheeked man lying in bed in no distress. There was a questionable icteric tint to the skin and sclerae. There were many spider telangiectases of varying sizes over the skin of the back, shoulders, chest and abdomen. There was slight generalized glandular adenopathy. The glands were small, slightly firm and shotty. The heart was not enlarged, the rate and rhythm were not remarkable. The sounds were of good quality. There were basal and apical soft systolic murmurs. The blood pressure was 120/70. The abdomen was distended and showed a fluid wave and shifting dullness. The umbilicus was pouting. There were many dilated veins over the abdominal wall. The liver was percussed at the fifth rib. The edge of the liver was not felt. The spleen was not palpable. There were external and internal hemorrhoidal varices. There was moderate pitting edema of the ankles and lower legs.

The temperature was 99.8°, the pulse 108. The respirations were 28.

Examination of the urine showed a specific gravity of 1.014 to 1.020. A test for bile was positive. Examination of the blood showed a red cell count of 3,200,000 with a hemoglobin of 60 per cent, and a white cell count of 5,800, 74 per cent polymorphonuclears. The stools were negative. Both Hinton and Wassermann tests were positive. The icteric index was 25, the van den Bergh 3.97 milligrams direct. A liver function test showed 40 per cent retention.

X-ray examination of the esophagus showed a considerable irregularity of the lower third with a small filling defect in this region. The stomach and duodenum were negative.

An abdominal paracentesis on admission yielded 4300 centimeters of a slightly cloudy straw-colored fluid. The specific gravity was 1.010. A cell count showed 560 red blood cells and 108 white blood cells of which 74 per cent were lymphocytes. After paracentesis the liver edge was felt two or three fingerbreadths below the costal margin. The spleen was not felt, although it was enlarged to percussion according to one observer. After a second tap two days later the liver was again felt; no gross irregularities could be made out.

He was started on anti-luetic treatment consisting of potassium iodide and bismuth. He was also given salyrgan which failed to produce diuresis. He was discharged after two weeks and put on a high carbohydrate and low fat diet.

Second admission, four months after previous discharge.

History of interval. He was followed in the out-patient department where he received anti-luetic treatment. Approximately every nine days an abdominal paracentesis was performed. Eight to ten liters were removed each time.

On the afternoon of his present admission he arrived in the Emergency Ward in a very toxic state complaining of generalized abdominal and chest pains that he had had for the past three days. He was quite delirious and no definite history could be obtained.

Physical examination showed that he was obviously very ill, with rapid and shallow breathing. Just beneath the right axilla there was an area of dullness and bronchial breathing without râles. The abdomen was distended and filled with fluid. There was no marked tenderness.

The temperature was 104°, the pulse 120. The respirations were 35 to 40.

Examination of the urine showed 30 to 35 red blood cells per high power field. Examination of the blood showed a red cell count of 4,800,000, with a hemoglobin of 80 per cent, and a white cell count of 16,750, 92 per cent polymorphonuclears. The non-protein nitrogen of the blood was 29 milligrams. A portable film of the chest showed no evidence of disease.

He became almost comatose and developed a stiff neck. Both diaphragms were high. He developed high-pitched breath sounds on the left posteriorly with many fine to medium râles. Twitchings and chills appeared, the ascites increased, he began to cough frequently but raised no sputum. Occasional râles were heard at both bases. He rapidly failed, his temperature fell to 101°, his pulse which had ranged around 90 rose to 130, his respirations rose to 60. He died on the fifth day.

Differential Diagnosis

Dr. William H. Smith: "Three weeks before entry the patient noticed that his abdomen was becoming distended." That was probably a painless distention.

"He had lost about four pounds in weight." I think we must approach loss of weight with a good deal of caution, especially in the case of women, whose weight usually is far above what they would have you believe. There is an art in medicine as well as anything else.

"He had not noted any edema of his ankles, and there was no history of dyspnea, orthopnea,

precordial pain, nausea or vomiting." That would throw out the possibility of passive congestion associated with ascites or some heart condition.

"Since the age of fifteen he had been a moderately heavy drinker of alcoholic beverages." I do not like "moderately heavy" as a degree of drinking. Ordinarily a man who is a moderately heavy drinker is a very heavy drinker. There is no gauge we can apply to the amount a man may drink.

"He drank approximately one to three pints of heavy liquor per week." He had been drinking from the age of fifteen to forty-nine. One would say he might have been very busy during that time.

"For the past three years he had slight constipation requiring 'salts' about twice a week." I would have had a series of questions as regards the integrity of the rectum—whether there was a possibility of a carcinoma producing the obstruction.

"There was slight generalized glandular adenopathy." In the presence of a glandular adenopathy, I should have gone out of my way to interpret the systolic murmur in this case. I would be careful to note the width of the aortic arch for the possibility of aortitis.

If I gave the description of the history so far to an artist, he would probably paint me the picture of a man with cirrhosis of the liver.

"X-ray examination of the esophagus showed a considerable irregularity of the lower third with a small filling defect in this region." Esophageal varices, just as dilation of the veins of the rectum, are often associated with cirrhosis of the liver. There is a possibility of there being some condition of the esophagus of a different nature, such as syphilitic perhaps.

"The specific gravity of the ascitic fluid was 1.010." That is a transudate gravity such as you get in cirrhosis or chronic passive congestion of the liver due to heart conditions.

"A cell count showed 560 red blood cells and 108 white blood cells of which 74 per cent were lymphocytes." I do not pay any attention to the differential count of cells in ascitic fluids. I am very skeptical about the differential value of cells in ascitic fluid. A high lymphocytic count is very often associated with tuberculosis.

"On second admission, examination of the blood showed a red cell count of 4,800,000 with a hemoglobin of 80 per cent." His anemia had gone up from 3,200,000 to 4,800,000, likewise his polymorphonuclears from 74 per cent to 92 per cent.

"A portable film of the chest showed no evidence of disease." We have a clean cut statement that there was an area of dullness and bronchial breathing just beneath the right axilla. If there is collapse or pneumonia, it should show by x-ray.

It would seem to me that if we looked at this clinical picture through a low-powered microscope, i.e., if we took the broad field, the one presenting feature would be a man, forty odd years of age, a hard drinker, probably a harsh liver, who came in with ascites and a questionable icteric tint to his skin. The evidence would be cirrhosis of the liver, either alcoholic, syphilitic or combined, and some terminal infection, probably pneumonia. I think the background of the case is cirrhosis of the liver, either alcoholic or combined with associated terminal infection.

Clinical Diagnoses

Portal cirrhosis.
Pneumonia, ? bronchial.
Hepatic insufficiency.

Dr. Smith's Diagnoses

Cirrhosis of liver, alcoholic.
Pneumonia ?

Anatomic Diagnoses

Cirrhosis of the liver, inactive alcoholic type.
Primary liver cell carcinoma.
Acute purulent meningitis, slight.
Rheumatic endocarditis, chronic, mitral (very slight).
Pulmonary atelectasis.
Bronchopneumonia.
Arteriosclerosis.
Ascites.
Icterus.
Pleuritis, chronic fibrous.

Pathologic Discussion

Dr. Tracy B. Mallory: We found a cirrhosis of the liver and a little bit more, something that is practically never diagnosed clinically, that is a primary carcinoma of the liver. Any cirrhotic liver stands about a five per cent chance of developing a hepatoma. I believe this case could have been diagnosed if a good chest plate had been made at an early stage of the disease. It would almost certainly have shown the dome of the diaphragm distorted by a rounded projecting nodule. I have seen three chest plates in cases of primary carcinoma of the liver showing an elevation of that sort. One's only chance of diagnosing a hepatoma is to prove first that the patient has cirrhosis and then to find a grossly irregular mass. Sometimes one can feel it on the liver edge or, it seems to me, a little more often one can prove it by x-ray by showing irregularities on the upper surface of the liver. If we looked for it more often, we might make a successful antemortem diagnosis of primary carcinoma of the liver. We have never done it yet.

A Physician: How could you tell it from a gumma?

Dr. Mallory: With a positive Wassermann, one could not be sure without the therapeutic

test. A gumma in all probability would disappear very quickly, whereas this nodule would steadily increase in size.

DR. ADAMS: Was there any pneumonia?

DR. MALLORY: There were scattered minute foci of bronchopneumonia, but the lesion which produced the physical signs was primarily collapse.

A PHYSICIAN: Is syphilis itself without any complicating infection or toxic factor a very common cause of cirrhosis of the liver?

DR. MALLORY: It is unusual but occurs in a certain number of cases. A statistical survey of our cases suggests that luetic hepatitis in its chronic form is unlikely to produce clinical symptoms. We have about twenty-eight cases in our postmortem records, only two of which had definite symptoms.

A PHYSICIAN: How practical is it to do Wassermanns on these cases, and what percentage are positive?

DR. MALLORY: Do you mean Wassermann reactions on jaundice cases?

A PHYSICIAN: Yes.

DR. MALLORY: On the whole, I think the reputed danger of a falsely positive report on jaundice cases is much exaggerated. I think one occasionally does get a false positive, however, particularly in atrophy.

A PHYSICIAN: Did the liver show both atrophic cirrhosis and luetic invasion?

DR. MALLORY: Nothing was found but ordinary cirrhosis and the primary cancer. There was no evidence of syphilis. A further surprise was provided when the brain was examined. A very early acute meningitis was found and probably is a more reasonable explanation of the terminal coma than hepatic insufficiency.

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EDUCATIONAL, SOCIAL, AND VOCATIONAL GUIDANCE

IN another column of this issue is published notice of a work in educational, social, and vocational guidance recently undertaken by Professor Edwin M. Chamberlin of Boston University*. We believe that in this work there is a definite field, collateral with medicine but in no sense infringing upon it, a field, the results of whose cultivation can and should be of direct advantage and help to the physician.

The work of this collateral field consists in the guidance and direction of children and adults of both sexes who are faced with problems of educational, social, or vocational adjustment. These problems are encountered by many normal individuals, although the recognition of these situations is not so easy as in the case of those who are of distinctly superior or inferior ability. The latter, who are classified as abnormal within the strict meaning of that word, should, of course, be referred, like all psychoses or psychoneuroses, to qualified medical practitioners. But there is a considerable group of individuals falling within the categories of normal mentality who need expert advice and guidance if they are to be helped in avoiding various social, educational, and vocational pitfalls and errors into which too many individuals, both children and adults, fall.

*Page 741.

Recommendations, looking to such advice and guidance, should be based upon a complete case history under the definite headings of: general, social, medical, surgical, vocational, and psychometrical. In the psychometrical laboratory may be determined height, weight, muscular strength, physical and auditory acuity, vital index, and other pertinent facts of similar nature. These should be obtained with no idea of attempting a physical diagnosis but to discover whether the educational, social, or vocational maladjustment of the individual is due to uncorrected or undetected end-organ difficulty, and whether there is any indication that the case should be referred to a physician for diagnosis and treatment. Apparatus should be provided for the determination of eye-hand coördination, reaction time, mechanical skill and other abilities of significance in psychoeducational, and psychovocational work.

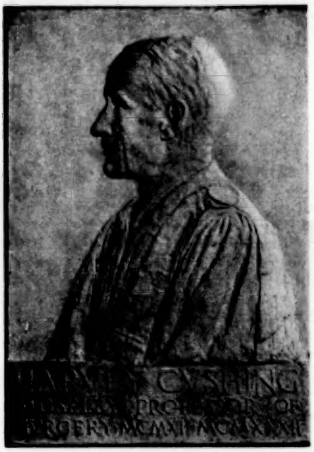
On the basis of information thus obtained, a composite picture should be developed to permit of as scientific direction as present methods allow. Frequently it may be necessary for the psychologist pursuing this work to obtain the consultation and report of medical practitioners. In the same way, the psychologist's findings should be helpful to physicians not prepared or caring to handle this type of work. Particularly should the facilities thus afforded prove of special interest to pediatricians who might have occasion to refer to the consulting psychologist children experiencing difficulties in the acquisition of reading or the development of speech habits. It is our conviction then, that in this work of the consulting psychologist there exists a definite field of work collateral with and adjuvant to various of the fields of medicine; and that the psychologist's work in his field may be made of definite and legitimate advantage, not only to otherwise normal individuals suffering from educational, social, and vocational maladjustments, but to physicians who in their own field have to deal with the physical and medical aspects which these individuals may present.

A TRIBUTE TO DR. HARVEY CUSHING

A LIFE-SIZE relief in bronze of Dr. Harvey Cushing, made by Paul Adrian Brodeur, will be presented in November to the Harvard Medical School by a group of his pupils, friends, and associates.

A bronze medallion in reduction of the orig-

inal is available, for those who may desire this memento, by application to Mr. Brodeur, 210 Walnut Street, Wellesley Hills, Mass.



HARVEY CUSHING, M.D.

The Boston Museum of Fine Arts has honored Mr. Brodeur by the purchase of this medallion.

THIS WEEK'S ISSUE

CONTAINS articles by the following named authors:

OVERHOLT, RICHARD H. A.B., M.D. University of Nebraska College of Medicine 1926. F.A.C.S. Formerly Instructor in Surgery, University of Pennsylvania. Surgeon, Lahey Clinic, Boston. Consulting Surgeon to New England Deaconess Hospital, New England Baptist Hospital, Norfolk County Hospital, Bristol County Hospital and the New Hampshire State Sanatorium. Address: 605 Commonwealth Avenue, Boston. Associated with him is

ECKERSON, EDWIN B. M.D. Columbia University College of Physicians and Surgeons 1931. Fellow in Surgery, Lahey Clinic, Boston. Address: 605 Commonwealth Avenue, Boston. Their subject is "The Treatment of Cancer of the Breast and the Results of Operation." Page 703.

DUNPHY, J. E. M.D. Harvard University Medical School 1933. Assistant Resident Surgeon, Peter Bent Brigham Hospital, Boston. Address: 721 Huntington Avenue, Boston. Associated with him is

ZOLLINGER, ROBERT. M.D. Ohio State University 1927. Junior Associate in Surgery, Peter Bent Brigham Hospital, Boston. Instructor in Surgery, Harvard Medical School. Address: 721 Huntington Avenue, Boston. Their subject is "Mesenteric Vascular Occlusion." Page 708.

SCHARLES, F. H. M.D. Washington University Medical School 1929. Assistant Physician, Collis P. Huntington Memorial Hospital. Assistant in Medicine, Harvard Medical School. Address: 1405 Bryant Building, Kansas City, Mo. Associated with him is

SEASTONE, C. V. A.B., M.D. Harvard University Medical School 1932. Austin Teaching Fellow in Bacteriology at Harvard 1930-1932. Research Fellow in Bacteriology, Harvard 1932-. Moseley Traveling Fellow 1933-1934. National Research Council Fellow 1932-1933. Address: 25 Shattuck Street, Boston. Their subject is "Haverhill Fever Following Rat-Bite." Page 711.

HAWES, C. H. A.B., M.D. Harvard University Medical School 1929. Assistant in Surgery at the Truesdale Hospital, and at the Fall River General Hospital. His subject is "Pancreatic Cyst." Page 714. Address: 151 Rock Street, Fall River, Mass.

SCHALL, LEROY A. M.D. Jefferson Medical College 1917. F.A.C.S. Instructor in Laryngology, Harvard University Medical School. Associate Surgeon in Oto-Laryngology, Massachusetts General Hospital and Massachusetts Eye and Ear Infirmary. Assistant Laryngologist, Robert Breck Brigham Hospital, Collis P. Huntington Memorial Hospital and Palmer Memorial Hospital. Visiting Surgeon, New England Peabody Home for Crippled Children. Consultant in Oto-Laryngology, United States Marine Hospital, Chelsea. Consulting Surgeon, Tumor Clinic, Boston Dispensary. His subject is "Progress in Laryngology." Page 717. Address: 270 Commonwealth Avenue, Boston.

MISCELLANY

PHYSICIANS' ART SOCIETY

SPECIAL EXHIBITION

The Physicians' Art Society of Boston is showing at the Boston Medical Library a collection of works of art by physicians and surgeons of Massachusetts.

One hundred paintings, drawings and sculpture, the work of twenty-nine individuals are on exhibition and eight Fellows of the American College of Surgeons are among the exhibitors.

The Society held a larger exhibition in April and two Fellows of the College were awarded first prizes in their particular fields of art. Dr. J. D. Barney for his pencil drawings of flowers and Dr. James C. Janney for his portraits in oil. The other two

awards went to Professor W. B. Cannon in sculpture and to Dr. W. W. Harvey for his watercolors.

The Fellows of the College should be interested in the work of two of their colleagues, Drs. Frederic J. Cotton and Harris P. Mosher, who are noted for their versatility. Dr. F. C. Irving, F.A.C.S., has a very fine oil and Dr. G. W. Taylor, F.A.C.S., some interesting pencil drawings. Dr. Sidney C. Wiggin is showing a life-size bust of Dr. F. J. Cotton, a founder of the College.

Of unusual interest are the wood carvings of Dr. Mosher, the models of wild ducks by Dr. L. W. Hill and the ship model of Dr. C. L. Payzant.

The exhibition will be open daily from 9 A.M. to 6 P.M., October 15 to October 27 except Sundays.

BOSTON MEDICAL LIBRARY

Exhibition of Surgical Classics

The exhibition of classical texts illustrates the development of surgery from the time of the Egyptians, 2000 B.C., to the end of the Renaissance in 1600 A.D. The periods covered are the Egyptian, Hindu, Chinese and Japanese, Greek and Graeco-Roman, Byzantine, Arabian, Salernitan, Medieval and Renaissance.

The Boston Medical Library has a collection of about 550 books printed in the fifteenth century, forty mediaeval manuscripts of the 13th to 15th centuries, and fine collections of classics of the later centuries.

From this rich storehouse of material, there are being shown the highlights in surgery with a few related books on anatomy.

Of particular interest is a 14th century Italian manuscript of Hippocrates on veterinary medicine; the first edition of Celsus 1478 and the first collected Galen 1490, the last-named a beautiful copy in its original binding. The collection of first editions of the Arabian surgeons is unusual and one may also see a complete copy of the Canon of Avicenna in an Arabic manuscript dated 1309.

Surgeons of the 15th century are represented by a choice collection of incunabula. In this period will be seen an unidentified Italian manuscript of the 15th century on surgery.

The graphic incunabula of medicine, illustrated books of the 15th century, exclusive of the herbals, are shown in a complete series, with the exception of the Helain skeleton of 1493 which is shown in the Brunschwig of 1497.

These books are the 1491 Ketham, the first medical illustrated book, with the editions of 1495 and 1500, the "Conciliator" of Petrus d'Abano of 1496 with the picture of the "muscle-man," the first edition of Brunschwig's "Chirurgia" with the added "Anothomia" and Peyligk's "Philosophia naturalis" 1498 with its illustrated anatomical compend.

First editions of Gersdorff, Paré, Vesalius, Phryrsen, Berengarius de Carpi, Bartisch, Ryff, Tagliacozzi, and early English printings of Lanfranc, Guy de Chauliac, John of Arderne, Vigo, Rhead, Gale, Banister, Crooke and Wiseman are worthy of special mention.

The first edition of the Fabrica of Vesalius is a presentation copy from Sir William Osler, and the first of the Epitome is said to be the finest copy in existence.

Especial attention is called to the complete pair of anatomical fugitive sheets of Fröhlich, Strassburg, 1544 with all the movable parts complete.

The Library has a special collection on art anatomy and is showing from this division the works of Leonardo Da Vinci, Albrecht Dürer and William Rimmer of Boston.

As a special feature the original manuscript of Amos Twitchell on the ligation of the carotid artery and the remarkable anatomical manuscripts of Alexander Ramsey are being shown for the visiting surgeons.

The exhibition will be found on the second floor at 8 Fenway in the Periodical Room and will be open daily from 9 A.M. to 6 P.M., October 15 to October 27, except Sundays.

THE HARVARD UNIVERSITY COMMITTEE ON RESEARCH IN DENTAL MEDICINE

Seven noted Harvard University research men in the Faculty of Arts and Sciences, the Medical School, and the Dental School have been appointed by President James B. Conant as members of a University Committee on Research in Dental Medicine, the first committee of its kind in educational history.

In recognition of the fact that modern dental research is intimately bound up with and dependent upon research and expert knowledge in the fields of Chemistry, Biology and Medicine, the committee has been given general supervision over research in the Dental School. Its province will be trifold: to promote important dental research; to act as a clearing house for such of that research as is important to other fields; and to provide official contacts through which the Dental School can readily get assistance for its research problems that overlap the other departments.

The committee consists of Elmer P. Kohler, Abbot and James Lawrence Professor of Chemistry; Alfred C. Redfield, Professor of Physiology and Director of the Biological Laboratories; Simeon B. Wolbach, Shattuck Professor of Pathological Anatomy, and Consulting Pathologist to the Cancer Commission of Harvard University; Walter B. Cannon, George Higginson Professor of Physiology; Percy R. Howe, Thomas Alexander Forsyth Professor of Dental Science, and Instructor in Pathology, Harvard Medical School; Lawrence W. Baker, Professor of Orthodontia; and Dr. George P. Matthews, Instructor in Anatomy. Dean Leroy M. S. Miner of the Dental School will serve as a member ex-officio of the committee.

The first project sponsored by the committee will be an elaboration of some research work in the effects of nutrition on teeth and their supporting

structures, which has been carried on by Professor Howe, collaborating with Professor Wolbach.

The particular problem is as follows, in the general field of vitamin deficiency studies:

1. Extension of studies now in progress on the mode of action of Vitamin C or ascorbic acid to include: (a) testing, with scorbutic guinea pigs, the activity of products intermediate in the synthesis of ascorbic acid from xylose; (b) the preparation and testing of substances formed by systematic changes in the structure of ascorbic acid; (c) an investigation of the manner in which ascorbic acid is produced by animals which are not subject to scurvy.

2. The study of the effects of inorganic deficiencies and especially the substitution of various elements for calcium in the diet.

3. The study of intercellular materials as solvents in the living animal for diffusible materials introduced into the blood stream at a rate faster than elimination can take place. There is much evidence that sugars diffuse into collagen to a point of equilibrium with the accumulation in the blood stream so that the studies should begin with sugars. It is possible that sugars may play a rôle in calcification of tissues. In any event, an attempt will be made to study calcified tissues, teeth, and bone. It is to be anticipated that progress will be slow as the techniques required will have to be worked out.

It is hoped that these researches will not only clear up some dark problems so far as dentistry is concerned, but also add to the knowledge of some of the broader aspects of biology.

For this work the committee has received a Milton Fund grant of $8,000 for the year 1934-35. It will be under the immediate supervision of Professors Howe, Wolbach, and Kohler, of the committee.

It is proposed to obtain the assistance of a research organic chemist, who will develop the chemical aspects of the problem, under the guidance of Professor Kohler. Dr. Wolbach will supervise the work in the pathological field, while Dr. Howe will continue his general nutritional experiments.

"The formation of the committee is a timely recognition of the recent development of dental research," explained Dean Miner of the Harvard Dental School.

"Until the last few years dentistry has been generally regarded as an isolated training. This new step indicates the breadth of the problems of dental research, and the importance of those problems to the other branches of medical knowledge and investigation.

"To-day the expert needs help in rounding out his findings. We are trying, through this new committee, to get a coördinated research with expert attention in the various fields. The result of such research will contribute far more than a fine performance in any one particular field."

Since the naming of the Thomas A. Forsyth Chair of Dental Science in 1925, there has been a liaison between Dental School research activities and the pathological department of the Medical School. But until the present step there has been no general official coöperation between the research staffs of the University and of the Dental School.

The particular project outlined above is but one of many now under way which the committee will help to develop along fundamental lines.

Other projects now in progress deal with dental caries, the most prevalent of all diseases, and with studies of the growth and development of the jaws and teeth.

THE ANNUAL CONFERENCE OF THE NATIONAL SOCIETY FOR THE PREVENTION OF BLINDNESS

The Annual Conference of the National Society for the Prevention of Blindness will be held in New York City, December 6-8, it is announced by Lewis H. Carris, Managing Director.

Dr. Edward Jackson of Denver, Colo., dean of American ophthalmologists, will deliver the principal address on the subject "A Wide Basis for Blindness Prevention." Dr. Jackson was the first recipient, in 1925, of the Leslie Dana Gold Medal which is awarded annually for outstanding achievements in the prevention of blindness and conservation of vision.

Among the topics that will come up for discussion at the Conference will be: the causes of blindness; sight-saving classes for children with seriously defective vision; prevention of eye accidents; and prevention of prenatal infections which may cause blindness.

THE APPENDICITIS RECORD FOR 1933

The statistics of appendicitis for 1933 are somewhat conflicting. The returns for 60 cities show an increase in the rate from 15.7 per 100,000 in 1932 to 16.2 in 1933, while the returns for 174 cities show a decline in the rate from 16.6 to 16.3. Of the two sets of returns the latter is more important and conclusive, since it is based on a population of approximately 44,000,000.

For all practical purposes the death rate has reached a stationary condition with a slight tendency downward, reflecting unquestionably the results of educational efforts to teach the public to accept early operations and avoid the use of cathartics. The most important educational effort in this direction is that made in Philadelphia under the direction of Dr. John O. Bower of the Philadelphia General Hospital, operating under the auspices of the Department of Public Health.

The work in Philadelphia has been going on for four years, and the results are apparent in the ma-

terial reduction in the death rate based on the number of cases treated. In 1928-29 the fatality rate for appendicitis in Philadelphia was 5.97 per cent, while in 1932 it was 3.44 per cent. — From an article by Frederick L. Hoffman, LL.D., in *The Spectator*.

CORRESPONDENCE

A LETTER OF APPRECIATION

The Commonwealth of Massachusetts
Department of Industrial Accidents
State House, Boston

October 5, 1934.

Dr. William H. Robey,
Boston, Massachusetts.

Dear Doctor:

I received your letter of thanks for giving, as you say, Mrs. Robey and yourself the pleasure of attending the banquet of the International Association of Industrial Accident Boards and Commissions, but at this time I am writing to thank you and Mrs. Robey for honoring me by your presence. It was a pleasure to see you there and it made me very proud that you, as President of the Massachusetts Medical Society, were seated at the head table.

I feel particularly grateful to the members of your Association who took part in our medical program. The delegates who attended the convention said it was the finest medical program which they had ever had the pleasure of listening to at all the conventions they had ever attended. They remarked about the splendid type of medical men which we have in Massachusetts, and I told them that there were many hundreds more like the men who read the papers and took part in the discussions, and that we had to refuse many who desired to take part in it because of lack of time and space.

I feel also very grateful to the medical profession for turning out in such large numbers at the banquet and at the various sessions of the convention. It showed an excellent spirit, and showed that they were ready to coöperate with the Board in the solving of its many problems.

I wish if it were possible that you would convey my thanks, through your Medical Journal, to all of these splendid men in your Association who in any way assisted us in making this convention the great success that it was.

Very sincerely yours,

JOSEPH A. PARKS, *Chairman*.

TABOPARESIS IN FICTION

September 26, 1934.

Editor, *New England Journal of Medicine*,

The following is from "The Man of Iron" by Richard Dehan (Frederick A. Stokes & Company, 1915). A few words of explanation are in order before the quotation. This striking description is reminiscent of some of the passages concerning medicine in W. Somerset Maughm's "Of Human Bondage." The happenings are supposed to have taken place in London in 1870, at about the time of the Franco-Prussian War. The hero of the novel, Patrick Carolan Breagh, had been a student of medicine at the Augusta Hospital at Schwärz-Brettingen. He had just returned to London to find that his patrimony had been completely dissipated by the law firm to whom it had been entrusted, the senior partner of the firm having committed suicide.

The part of the story from which I quote, finds the hero, Patrick Carolan Breagh, wandering about the streets of London, penniless. He finds his way into Piccadilly and is accosted by the remarkable individual, who is so well described, and who turns out to be a Peer of the Realm.

"He saw the thick-set, rather lax and round-shouldered figure of a man of middle age, dressed in a suit of tweeds patterned in giant checks of black and white and gray, the dernier cri in masculine morning-wear, had the observer but known it. His hat, a low-crowned chimney-pot in hard gray felt, was tilted backward, his hair, of a pale tow-color, tufted out from beneath the hat in a way that cried for the attention of the barber; his whiskers, and mustache, of the same shade as the hair, were raggedly in need of the shears. He wore a button-hole-bouquet composed of a pink camelia with Neapolitan violets, and pale lemon kid gloves, and sucked the carved ivory knob of an ebony stick he carried, until, upon his neighbor's looking around, as above recorded, he took it from a somewhat lax and swollen mouth, and observed that it was a nice afternoon. Adding, as P. C. Breagh made a sound which might have been assent or denial:

"'If it is affernoon? Without my fellow to post me, I'm apt to be wrong about time. Not that that's remarable. Lots of people the same, don't you know? Nothing extra—nothing ex—oh, damn!'

"A covert anxiety—and a very visible tremulousness were combined in the speaker's manner. His gestures were uncertain, and his words, well chosen enough, and uttered with the tone usually distinctive of a gentleman, came haltingly from a tongue that seemed to be too large for its owner's mouth:

"'You don't regard it as extra . . . Stop a minute!' A pause ensued, during which the vague-eyed gentleman waited, clutching his stick with both hands, and holding his swollen mouth ajar.

"'Extraordinary was the word you wanted, wasn't it?'

"'Much obliged! The word, unnoutedly! 'Stror'nary how words do dodge one on accasion!' returned the uncertain gentleman in the large-patterned tweeds. He added, pulling at the ragged light mustache, with a gloved hand that was decidedly shaky: 'I don't know that it matters parricurarly—but I'd prefer you to know that I'm not runk!'

"'Not—what?'

"'Not runk!' repeated the vague-eyed gentleman emphatically. 'Not cut, foozled, miffed, fizzed,

screwed! Not that it's oblig—that's another of the words that perretually queer me!—or incumment on me to isphin, but I regard it as due to myself, by Gad! that you should clearly unnerstand the case. As I said to the manuscript upon the Bench when the bobby ran me in on Thursday—or was it Friray? . . . Appearances are sally against me, but I have never been a rinking man! The doctors have a crajjaw name for my connition, which under the exissing circ — and that's another of the words that play the deuce and all with me! . . . Look at my westick, buttoned all wrong!'

"He slewed round upon the seat, and throwing back the large-patterned, fashionably cut-away coat, exhibited the garment mentioned, every buttonhole of which afforded hospitality to a button not its own. His necktie, the ample, sailor-knotted necktie of the period, was under his left ear, and his shirt had come unstudded. Being appealed to, P. C. Breagh admitted that the existing condition of things left something to be desired!

"'When a man entirely ripends on valets and domessicks,' explained his incoherent neighbor, 'a man is apt to be neglected and so on. As a marrer of fact I live in that little joppa cottisit!' He waveringly pointed to a large, handsome private dwelling with an ornate portico, situated nearly opposite, and sandwiched between two Clubs. 'An' as a marrural conquicense of my temorrary irrability to pronounce words of the most orinary nature, I am——' He drew an aimless figure in the muddy gravel with his ivory-topped, ebony stick, and went on with a weak laugh, 'I am absoluly neglected by my own housebol'. My own children seem ashamed or afray of me—all but little Foxhall—splendid little chap is little Foxhall! But his mother—my wife——' He broke off to say—'You will excuse my touching on these priva' matters in conversation with a perfec' stranger. I am quite conscience I trepsass against the orinary usages of propriety, aspecially in speaking of my wife! . . . But—the fact is, sir! I am most desperately wretched. Six people imagine me runk—out of every half-dozen. While the other six—the irriots whisser it when they think I'm out of earshock—suppose me to be suffrig from Sofrig of the Bray!'

"He began to tremble and shake, and put his stick between his knees to hold on to the edge of the seat with his lemon-kidded hands—and couldn't hold the stick in that position, and it fell, and P. C. Breagh picked it up and put it back.

"'I am murrabliged,' said the owner of the stick, 'by your kind attention!' Something struggled and fought in the vague blue eyes that he turned upon Carolan,—it seemed as though in another moment Fear and Terror might have leaped glaring into sight. 'And while I am boun' to ajopolize for thrussing my privarrafairs upon a stranger—I feel bound to put the quession; Why should thissorathing happen to ME? Goolor'! I've been no worse than lossa urra fellers!' He rose up shaking, and shakily sat down again, nearly missing the bench.

"'Bessaran loss of 'em—if you come to that!' He turned to Carolan, and the vague eyes were piteous and desperate . . . 'You see the sort of chap my luck—my damble luck—has made o' me! Yet I used to be envied—envied . . . you unnerstand! I have belonged to the best regiment in the Brigadeof Guards—the devil another! I have played the bes' cards, driven the bes' turnouts, smoked the bes' cigars and had the most stunnin' women! Do you unnerstand me?—Have!' He brought down the uncertain hand in an attempt to strike his knee emphatically, and missed it; and tried to look as though he had not, and went on: 'And I have belonged to the best Gloves, by Gad! an' put on the clubs with the most celebrarred li'weights! And I rode my steeplechase at York, and romped in first, and they toasted and speechified me at the Gimcrack dinner. And I won my Oaks and me Derby—and led in the winner, with all the cheeple reering;—the seeple peering—the—Goolor'! Goolor'! And the horse was Gladianor—and the victory was a popular one—and my name was a household word through the Unirred Kingom. A household word! . . .' He broke off, trembling and sweating, as the horse might have done after the race, and put the wavering hand to his head, and turned his empty blue eyes from Carolan's as though they hurt. 'What was my name?' he asked himself in a dull, thick, shaky whisper, 'Goolor'! Goolor'! What *was* my name? . . . That you, Murchison?'

"For a decent figure in the irreproachable dark clothing of a servant out of livery had passed and turned back, and now approached the bench, eyeing Carolan suspiciously even in the act of uncovering its well-brushed head, and saying in the smooth accents of servility:

"'It is Murchison, your Grace. It's cold, your Grace, and you've not got on an overcoat. Your Grace had best come home now, before your Grace is missed! . . .'

"'Home?' His Grace looked mildly from the authoritative Murchison to the stately "cottage opposite," and one of the uncertain hands in the pale lemon kid gloves, making as though to pluck at an untrimmed whisker, found itself imprisoned in a deferential but vigorous grip.

"'Home, your Grace!' said Murchison, applying muscular leverage to raise the inert figure.

"'All right. Prass I better, Murchison!' He rose to the perpendicular. . . 'Wish you a very good evening, sir!' With a faded reminiscence of what might have been a courtly manner, he touched his hat to P. C. Breagh, who returned the farewell greeting, avoiding the sharp glance of Murchison. Then valet and master moved off, leaving a little trail of dialogue behind them.

. . . . . .

"And Murchison and His Grace went away together, the man steering, with deft guiding touches of

the master's elbow, the latter stepping high and bringing his feet down with a peculiar thump that threw a light upon the situation in the eyes of P. C. Breagh. Not softening of the brain. Donnerwetter! what were the London doctors thinking of? Had none of them read the 'Dissertation on Tabes Dorsalis' of the Herr Doctor Max Baumgarten, published in Berlin only a twelvemonth previously, and dealing fully with that rare and curious disease of the nervous system? . . . Fibrous degeneration of the posterior columns of the spinal cord, affecting the patient's sight, gait, and—in isolated cases — speech and memory.

"'I'd like to have got him to let me rap his shins! Bet you anything there'd have been total absence of reflex action! Remember that peddler in the Nervous Ward of the Augusta Hospital at Schwärz-Brettingen! . . . And this man—being a thundering swell and having the best advice possible—is naturally being treated all wrong!'"

Very truly yours,
WM. PEARCE COUES, M.D.

ARTICLES ACCEPTED BY THE AMERICAN MEDICAL ASSOCIATION COUNCIL ON PHARMACY AND CHEMISTRY

535 North Dearborn Street, Chicago, Ill.,
September 29, 1934.

Editor, *New England Journal of Medicine*,

In addition to the articles enumerated in our letter of August 28 the following have been accepted:

Abbott Laboratories
- Bismuth Subsalicylate with Butyn-D.R.L.
- Ampoules Procaine Hydrochloride Solution 10%, 2 cc.
- Ampoules Procaine Hydrochloride Solution 2%, 5 cc.
- Procaine-Epinephrine Solution, 100 cc. Bottle
- Procaine Hydrochloride Hypodermic Tablets 1/3 grain
- Procaine Hydrochloride Hypodermic Tablets 3 grains

Cutter Laboratory
- Solution Dextrose-U.S.P., 25 Gm., 50 cc. in Bottles
- Solution Dextrose-U.S.P., 50 Gm., 100 cc. in Bottles
- Solution Dextrose-U.S.P., 5% in Saftiflask Containers
- Solution Dextrose-U.S.P., 10% in Saftiflask Containers

National Drug Company
- Rabies Vaccine (Human) Chloroform Killed
- Refined Tetanus Toxoid (Alum Precipitated)

Parke, Davis & Co.
- Capsule Ortal Sodium ¾ grain (0.05 Gm.)

Ucoline Products Co.
- Ucoline Cod Liver Oil Concentrate
- Ucoline Cod Liver Oil Concentrate Tablets

Winthrop Chemical Co., Inc.
- Duotal Tablets, 5 grains

The following product has been accepted for inclusion in the List of Articles and Brands Accepted by the Council But Not Described in N.N.R. (New and Nonofficial Remedies, 1934, p. 439):

Merck & Co., Inc.
- Amidopyrine—Merck

Yours sincerely,
PAUL NICHOLAS LEECH, *Secretary*,
Council on Pharmacy and Chemistry.

ARGUMENTS FOR MORE TEACHING OF PSYCHIATRY

October 4, 1934.

Editor, *New England Journal of Medicine*,

Your leading editorial of the September 27 issue, entitled "Psychiatry, Past and Present" and based on Dr. Stearns' article on "Psychiatric Education," should be met by the ancient adage, "Don't throw out the baby with the bath." There are great difficulties both in the classification and treatment of the psychoses, feeblemindedness and epilepsy, as you state. What of it? There is, nevertheless, a field of psychiatry. The state hospitals continue to receive patients in a steady and appalling stream. And since it is not our will which creates a specialty, so it is the fact of mental disease, however poorly understood, which establishes both psychiatry and psychiatrists.

It is not often that I disagree definitely and substantially with Dr. Stearns. On this occasion, I may say that his article is a gesture of despair not warranted by the history of psychiatry. In the time that he and I have been practising psychiatry, general paresis has become exactly diagnosible, and improvement in its treatment in a substantial way has taken place. This has been done by neurologists and psychiatrists, assisted of course by the men working in other fields, but collaboration in medicine is no discredit to any group.

There has been a considerable advance in the understanding of senile dementia, as witness all the work done on plaque formation within the brain. The alcoholic psychoses are understood as to etiology, and their treatment in the state hospitals is humane and successful. The influence of hydrotherapy as a therapeutic agent in many of the acute and maniacal states, the use of chronic sedation in other cases are useful adjuncts to the treatment of excited conditions which every general practitioner is going to meet in his practice and which he needs to know something about.

Nor are your statements, and his, concerning dementia praecox and manic-depressive psychosis entirely warranted. There are difficulties in differentiating the two psychoses, but this does not wipe

them out of existence. It is true we know neither their cause, although heredity plays an important rôle, nor their cure, although the hospitals are efficient in their care. Again, what of it? There are many diseases of which we know neither cause nor cure, but does the Editor advise a pessimistic attitude toward cancer?

The very magnitude of the problems, the very difficulties of psychiatry, are not reasons for lessening the attention given them in the medical schools. To my mind, these are just the reasons why the schools should seek to train a larger and better group of psychiatrists to do a better job than the struggling men of the past and present.

I disagree entirely both with the editorial writer and Dr. Stearns about the emphasis to be laid on the teaching in the medical schools. Dementia praecox, manic-depressive psychosis, the psychoses generally, feeblemindedness, and epilepsy constitute the main problems of psychiatry. We medical men are the group which must solve these problems. As for social psychiatry, deeply interested as I am in the matter, it is more sociology than psychiatry, and has more to do with the economics, traditions, customs, and institutions of the world than it has with mental disease. As psychiatrists we have something to add to these matters, but we are not the leading figures in the study of crime, unemployment, domestic difficulties, and the like. Certainly, teach social psychiatry; certainly, teach medical psychology which, by the way, has mainly come from the psychiatrists and not from the rank and file of the men practising other specialties. Whatever enlightenment there exists in the profession to-day regarding the effect of mind upon body has largely come from the teaching of the humble psychiatrist. But do not neglect the basic subject matter of the field.

"Tu quoque" is neither argument nor defense. It would do no good to point out the unsolved problems in every field of medicine, but it might well be emphasized at this point that the psychiatrist has the most difficult field in the profession. One can experiment on animals and find out about liver function. The action of the heart in the dog is not different than the action of the heart in man. Psychiatry can learn but little from animal experimentation about human thought, emotion, and deed.

Psychiatrists make mistakes; they dogmatize in advance of the facts; they build up systems which are all-inclusive and rest on a slender foundation; in short, they are human. But neither the dean of Tufts College Medical School nor The *New England Journal of Medicine* should do anything to discourage young men and women from entering this field and lending to it the fervor of youth and the discipline obtained in medical schools.

Very sincerely yours,

ABRAHAM MYERSON, M.D.

270 Commonwealth Avenue,
Boston, Mass.

RECENT DEATH

WRIGHT—CHARLES WADSWORTH WRIGHT, M.D., of North Adams, Massachusetts, died at his home in Longmeadow on September 25, 1934. Dr. Wright, who was seventy years of age, had practiced ophthalmology and otolaryngology in North Adams for thirty-seven years until the time of his retirement in 1931.

Born at Pownal, Vermont, Dr. Wright attended the old Drury Academy and graduated from Wilbraham Academy before entering New York University Medical School, from which he received his degree in medicine in 1888. In 1894 he received a degree from the New York Post-Graduate Hospital, and in the same year one from the Royal London Ophthalmic Hospital. A veteran of the World War, Dr. Wright was a member of the American Legion.

He is survived by a daughter, Mrs. Marion Wright Carter of Longmeadow, and two grandchildren.

NOTICES

The Massachusetts Medical Society

SECOND ANNUAL POSTGRADUATE MEDICAL EXTENSION COURSE.

The following sessions have been arranged by the Committee:

Barnstable

Sunday, October 21, at 4:00 P.M., at the Cape Cod Hospital, Hyannis. Subject: Pediatrics. John I. B. Vail, M.D., Chairman.

Bristol South (Fall River Section)

Monday, October 22, at 4:00 P.M., at the Stevens Clinic of the Union Hospital, Prospect Street, Fall River. Subject: Cardiovascular Disease. Eugene A. McCarthy, M.D., Sub-Chairman.

Essex North

Tuesday, October 23, at 4:00 P.M., at the Hotel Bartlett, 95 Main Street, Haverhill. Subject: Surgery. Francis W. Anthony, M.D., Chairman.

Essex South

Tuesday, October 23, at 4:00 P.M., at the Salem Hospital, Salem. Subject: Endocrinology. Walter G. Phippen, M.D., Chairman.

Hampden

Thursday, October 25, at 4:00 P.M., at the Academy of Medicine, Professional Building, 20 Maple Street, Springfield, and at 8:00 P.M., at the Holyoke City Hospital, Holyoke. Subject: Cardiovascular Disease. George L. Schadt, M.D., Chairman.

Hampshire

Wednesday, October 24, at 4:00 P.M., in the Nurses' Home of the Cooley Dickinson Hospital, Northampton. Subject: Pediatrics. Robert B. Brigham, M.D., Chairman.

Middlesex East

Wednesday, October 24, at 4:00 P.M., at the Melrose Hospital, Melrose. Subject: Obstetrics and Gynecology. Joseph H. Fay, M.D., Chairman.

Middlesex South

Monday, October 22, at 4:30 P.M., at the Cambridge Hospital, Mt. Auburn Street, Cambridge. Subject: Endocrinology. Charles E. Mongan, M.D., Chairman.

Norfolk South

Monday, October 22, at 8:30 P.M., at the Quincy City Hospital, Quincy. Subject: Cardiovascular Disease. David L. Belding, M.D., Chairman.

Plymouth

Tuesday, October 23, at 4:00 P.M., at the Brockton Hospital, Brockton. Subject: Cardiovascular Disease. (Second session on this subject.) Walter H. Pulsifer, M.D., Chairman.

Worcester North (Ayer Section)

Thursday, October 25, at 8:00 P.M., at the Ayer Community Memorial Hospital, Ayer. Subject: Common Neuroses and Their Treatment in Private Practice. The Psychoses—Early Diagnosis. Frank S. Bulkeley, M.D., Chairman.

Additional notices will appear in subsequent issues of the *Journal*.

DR. STRAUSS AND DR. CASTLE TO SPEAK AT THE RHODE ISLAND STATE HOSPITAL FOR MENTAL DISEASES

The following members of the staff of the Thorndike Memorial and the Harvard Medical School will present papers on Tuesday, October 23, at 8:15 P.M., in the Reception Building of the Rhode Island State Hospital for Mental Diseases:

Dr. Maurice B. Strauss—Polyneuritis, Spinal Cord Sclerosis and Korsakoff's Syndrome.

Dr. William B. Castle—The Practical Treatment of Anemia.

JACOB KASANIN, M.D., *Clinical Director*.

PERSONAL GUIDANCE CONSULTATIONS

Professor Edwin M. Chamberlin, for fifteen years head of the department of psychology in the College of Business Administration of Boston University, on October 1 opened private offices at 370 Commonwealth Avenue, Boston, for the practice of educational, vocational and personal guidance.

Professor Chamberlin trained at Harvard where he received his Ph.D. in 1917. During the war he served as a Captain in the Psychological Section, Sanitary Corps, U. S. Army. He is a member of the American Psychological Association, a Fellow of the American Association for the Advancement of Science, and a representative of the Psychological Corporation.

Dr. Chamberlin will be assisted by Mr. Lowell S. Trowbridge in charge of the laboratory and of psychometrics.

RADIO PROGRAM

MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH

October-December, 1934

Health Messages

Wednesdays—Courtesy WBZ—4:30 P.M.

Papers Prepared by Members of the Massachusetts Medical Society

Habit and Digestion
Old Age Deferred
Appendicitis
Hospitals
Gall Bladder Trouble
Prenatal Care
Anemia and Its Treatment
First Aid
Protecting the School Child from Fatigue and Strain
Abdominal Pains
How Surgery Advances
Angina Pectoris
Arthritis

Health Review

Tuesdays—Courtesy WEEI—1:30 P.M.

Historical Sketches of Public Health

By Miss Eleanor J. Macdonald, A.B.

Edwin Chadwick
The Contribution of Edwin Chadwick to Public Health
Lemuel Shattuck
The Report of 1850
The Report of 1850 Continued
The 1869 Board of Health and Vital Statistics
The State Board of Health, Lunacy and Charity and the Reëstablishment of the State Board of Health
The State Board of Health
Massachusetts Department of Public Health
Water
Methods of Obtaining Water Through the Ages
Modern Methods of Obtaining a Pure Water Supply
Pure Water and Filtration

Health Forum

Fridays—Courtesy WEEI—5:00 P.M.

Short Topics Requested by Radio Audience on Health Matters

By Lila Owen Burbank, M.D.

CLINIC AT THE PETER BENT BRIGHAM HOSPITAL

At 3:30 P.M. on Thursday, October 25, in the amphitheater of the Peter Bent Brigham Hospital Dr. Henry A. Christian, Physician-in-Chief, Hersey Professor of the Theory and Practice of Physic in the Harvard Medical School, will give a medical clinic. To it are cordially invited practitioners and medical students. These clinics will be repeated on Thursdays, October to May.

On Saturdays in the wards of the Peter Bent Brigham Hospital, from 10 to 12, staff rounds will be conducted by Dr. Christian. These are open to all physicians.

A WITHDRAWAL FROM PARTNERSHIP

Dr. Samuel Walker Ellsworth has retired from the partnership of Drs. Ellsworth and Wheatley. Dr. Frank Edward Wheatley will continue the practice of radiology at the same location, 520 Beacon Street, Boston, Massachusetts.

EXAMINATION OF ABORTIONS AND MISCARRIAGES

Dr. Arthur T. Hertig, Assistant Pathologist at the Boston Lying-In Hospital, Research Fellow in Obstetrics and Instructor in Pathology at Harvard Medical School, having completed a year's study and investigation at the Carnegie Institute of Washington under Dr. George L. Streeter is prepared to examine and report on specimens of abortion and miscarriage from their embryological and pathological aspects. Since the spontaneous termination of early pregnancy is usually due to faulty development the assurance in a given instance that such is the case is of great value to the physician and a source of consolation to the patient, since she is thereby assured that the accident occurred through no fault of hers.

Specimens should be preferably unopened and accompanied by as much of the decidua as possible. Any specimens, however, will be accepted. They should be placed in 10 per cent formalin as soon as possible after they are obtained. Accompanying them should be a brief history of the case including the patient's menstrual history, statements in regard to previous miscarriages, if any, and any facts concerning the exciting cause in the abortion or intercurrent infections. They should be mailed to Dr. Arthur T. Hertig, Boston Lying-In Hospital, 221 Longwood Avenue, Boston, Mass. No charge either for the examination or the report will be made to any physician practicing in the New England states. This service is offered by the Department of Obstetrics of Harvard Medical School and the Boston Lying-In Hospital.

FREDERICK C. IRVING, M.D.,
Professor of Obstetrics,
Harvard Medical School.

REMOVAL

J. LERMAN, M.D., announces the removal of his office to 370 Commonwealth Avenue, Boston.

REPORTS AND NOTICES OF MEETINGS

FAULKNER HOSPITAL CLINICAL MEETING

The regular monthly clinical meeting was held at the Faulkner Hospital on Thursday afternoon, October 4.

Two cases which had come to autopsy during the summer were discussed.

One was of interest in that an abscess developed between the spleen and the diaphragm following the removal of a gangrenous appendix. The patient apparently recovered from the operation only to have evidence of sepsis develop about ten days after leaving the hospital. There were very few physical signs pointing toward the abscess beneath the diaphragm and by x-ray there was simply some limitation of motion of the diaphragm on the left. Just before death the abscess perforated through the diaphragm and filled the left pleural cavity with purulent material and also the infection extended into the pericardium. Because there were several types of bacteria recovered from the abscess it was felt that it was not a blood-borne infection but a direct extension from the gangrenous appendix, although the route of the infection was not manifest. In the discussion the question was raised in regard to the possibility of certain cases of thickened splenic capsule being due to infections of this sort associated with appendicitis.

The other case was a typical case of chronic vascular nephritis with markedly contracting kidneys, hypertension and uremia. The interesting feature of this case was the size of the heart which was only about forty grams above normal and yet the hypertension had been known to exist for several years.

Following the presentation of these two cases Dr. Arthur A. Cushing gave an excellent description of agranulocytosis and discussed its treatment. This study was the result of three cases which he had had under his observation within the last few months. He called attention to the fact that the etiology of the disease and the exact nature of it is not clear. It may be a primary blood disease; it may be simply an infection of unknown etiology or the result of some chemical agent. Various drugs of the barbiturate group, pyramidon, dinitrophenol and allonal have all been blamed as etiological factors, but proof hardly seems established.

He called attention to the fact that in order to be sure of the diagnosis the granulocytes should be entirely absent from the blood stream. These cells disappear gradually and therefore they might not be entirely absent on all examinations but eventually there should be a complete absence of them. The

red count and hemoglobin in these cases are usually normal. The onset is usually somewhat sudden and the most common symptoms are soreness of the mouth associated with fever, malaise and often chills. Whether the enlargement of the glands in the neck is secondary to the mouth infection or part of the disease has not been established. Occasionally there are ecchymotic spots. The mortality is reported all the way from 100 per cent to 30 per cent. Various forms of treatment have been tried. The most popular at the present time are injections of liver extract intramuscularly and the use of nucleotides. It was brought out in the discussion that nucleotides take several days for their effect and therefore the patient has often begun to spontaneously recover before the nucleotides can be beneficial.

Dr. Cushing in his cases has used liver extract intramuscularly rather than nucleotides. Of his three cases, two recovered. The one which died was seriously ill before the liver extract was administered.

It was suggested in the discussion that cases of sore mouth in which a lowering of the blood count was present might be treated with nucleotides on the chance that such was the beginning of a case of agranulocytosis.

HARVARD MEDICAL SOCIETY

The next meeting of the Harvard Medical Society will be held in the Peter Bent Brigham Hospital Amphitheatre (Van Dyke Street entrance), Tuesday evening, October 23, at 8:15 P.M.

PROGRAM

Presentation of Cases.

Water Losses in Surgical Patients. By Dr. Frederick A. Coller, Professor of Surgery, University of Michigan.

MARSHALL N. FULTON, M.D., *Secretary.*

MASSACHUSETTS PSYCHIATRIC SOCIETY

The annual meeting and dinner of the Massachusetts Psychiatric Society will be held on November 1 at 6:30 P.M. at the Hotel Statler, Boston. After the business meeting and election of officers members will be addressed by Mr. Arthur Fiedler of the Boston Symphony Orchestra.

OSCAR J. RAEDER, M.D., *Secretary.*

MASSACHUSETTS MEMORIAL HOSPITALS

There will be a meeting of the Surgical Section on Friday, October 19, 1934. The meeting will be held in the Ladies' Aid Room (former nurses' dining room), Talbot Memorial, 82 East Concord Street.

MILO C. GREEN, M.D., *Secretary.*

THE MASSACHUSETTS MEDICAL BENEVOLENT SOCIETY

The annual meeting of the Massachusetts Medical Benevolent Society will be held at the Boston Medical Library on Thursday, October 25, 1934, at 5:15 o'clock.

HILBERT F. DAY, M.D., *Secretary.*

NEW ENGLAND PHYSICAL THERAPY SOCIETY

The first fall meeting of the New England Physical Therapy Society will be held at Evans Memorial, Boston, on Wednesday evening, October 24, at 8 o'clock.

PROGRAM

The Mechanics of the Spine and Thorax. John G. Kuhns, M.D., Boston.

Discussion will be opened by George E. Deering, M.D., of Worcester.

The Council will meet at 7:30 o'clock.

All members of the medical profession are cordially invited to attend and to participate in the discussion.

ARTHUR H. RING, M.D., *Secretary.*

THE NEW ENGLAND ROENTGEN RAY SOCIETY

The October meeting will be held at the Boston Medical Library, Boston, Mass., Friday night, October 26, 1934, at 8:15 P.M.

SCIENTIFIC SESSION

"Tumors of Bone." Channing C. Simmons, M.D., Boston, Mass.

Dinner at the Harvard Club.

T. R. HEALY, M.D., *President,*
370 Marlborough Street,
Boston, Mass.

RICHARD DRESSER, M.D., *Secretary,*
Collis P. Huntington Memorial Hospital,
Boston, Mass.

NEW ENGLAND HEART ASSOCIATION

The New England Heart Association will hold its first meeting October 29, at 8:30 P.M., in the Ether Dome at the Massachusetts General Hospital. The meeting will be conducted by Dr. Paul D. White and Dr. Howard B. Sprague. All members of the New England Heart Association and physicians interested are invited to attend.

JAMES M. FAULKNER, M.D., *Secretary.*
264 Beacon Street, Boston.

SOCIETY MEETINGS, CONGRESSES AND CONFERENCES

October 18—Medical Lecture at the Clover Hill Hospital, Lawrence, at 9 P.M.

October 19—Massachusetts Memorial Hospitals. Surgical Section. See notice elsewhere on this page.

October 19-20—New England Pediatric Society.
Combined meeting of the American Academy of Pediatrics (Region 1), New England Pediatric Society, Philadelphia Pediatric Society, and the New York Academy of Medicine Pediatric Section.
Two sessions on Friday, October 19, at 9:30 A.M. and 2:30 P.M.
One session on Saturday morning, October 20, at 9 A.M.
Dinner Friday evening, October 19, at the Hotel Ambassador.
Headquarters — Hotel Ambassador — Park Avenue and 51st Street, New York City.
GERALD HOEFFEL, M.D., Secretary-Treasurer.

October 22 - November 2—1934 Graduate Fortnight of the New York Academy of Medicine. See page 1240, issue of June 7.

October 23—Harvard Medical Society. See page 743.

October 24—New England Physical Therapy Society. See page 743.

October 25—Peter Bent Brigham Hospital and Children's Hospital Joint Surgical and Orthopedic Clinic. See page 698, issue of October 11.

October 25—Clinic at the Peter Bent Brigham Hospital. See page 742.

October 25—The Massachusetts Medical Benevolent Society. See page 743.

October 26—New England Roentgen Ray Society. See page 743.

October 29—New England Heart Association. See page 743.

October 30-31—Academy of Physical Medicine. The Annual Meeting will be held at the Hotel Pennsylvania, New York, October 30 and 31. For information address Arthur H. Ring, M.D., Secretary-Treasurer, Arlington Heights, Mass.

October 31 - November 2—Massachusetts State Nurses' Association, Hotel Statler, Boston. For information write Miss Helene G. Lee, R.N., 420 Boylston Street, Boston.

November 1—Massachusetts Psychiatric Society. See page 743.

November 5-9—Inter-State Postgraduate Medical Association of North America. See page 649, issue of October 4, and page 726 of this issue.

MASSACHUSETTS DIETETIC ASSOCIATION

November 7—Wednesday, 8 P.M. Forsyth Dental Infirmary for Children, 140 Fenway, Boston, "The Arrest and Control of Dental Caries," Dr. C. L. Drain, College of Dentistry, State University of Iowa.

November 20—Tuesday, 2 P.M. Field Trip: Visit Kitchens of the Hotel Statler.

December 11—Tuesday, 8 P.M. "Food Allergy," Dr. Frank N. Allan, Department of Medicine, Lahey Clinic.

January 8—Tuesday, 8 P.M. "Careers and Natural Abilities," Professor Johnson O'Connor, Human Engineering Laboratory, Stevens Institute of Technology, Hoboken, N. J.

February 12—Tuesday, 8 P.M. "Diabetic Children," Dr. Priscilla White, Joslin Diabetic Unit.

March 12—Tuesday, 8 P.M. "The Effect of Diet on Anemia," Dr. Lewis Diamond, Instructor in Medicine, Harvard University Medical School, Associate Physician, Children's Hospital.

March 19—Tuesday, 2 P.M. Field Trip: Visit Storehouse, First National Stores.

April 9—Tuesday, 8 P.M. "Small Hospital Problems," Miss Margaret Copeland, Superintendent, Free Hospital for Women.

November 9—William Harvey Society.

December 3-7—The Radiological Society of North America. See notice on page 562, issue of September 20.

December 6-8—Annual Conference of the National Society for the Prevention of Blindness. See page 736.

April 29 - May 3, 1935—The American College of Physicians will meet in Philadelphia. For information address Mr. E. R. Loveland, Executive Secretary, 133-135 South 36th Street, Philadelphia, Pa.

June, 1935—Medical Library Association will meet in Rochester, N. Y. For details address the Secretary: Miss Frances N. A. Whitman, Librarian, Harvard University Schools of Medicine and Public Health, Boston, Mass.

DISTRICT MEDICAL SOCIETIES

ESSEX NORTH DISTRICT MEDICAL SOCIETY

The Semi-Annual Meeting will be held in January and the Annual Meeting in May, time, place and subject to be announced.

E. S. BAGNALL, M.D., Secretary.

FRANKLIN DISTRICT MEDICAL SOCIETY

Meetings will be held on the second Tuesday of November, January, March, and May at the Weldon Hotel, Greenfield, Mass.

CHARLES MOLINE, M.D., Secretary.
Sunderland.

MIDDLESEX EAST DISTRICT MEDICAL SOCIETY

November 14—Reading.

January 9, 1935—Melrose.

March 13, 1935—Wakefield.

May 8, 1935—Winchester.

K. L. MACLACHLAN, M.D., Secretary.
1 Bellevue Street, Melrose.

MIDDLESEX SOUTH DISTRICT MEDICAL SOCIETY

October 31—Regular meeting to be held at the Hotel Continental, Cambridge.

ALEXANDER A. LEVI, M.D., Secretary.

PLYMOUTH DISTRICT MEDICAL SOCIETY

October 25—This meeting will be held October 25, 1934, at the Moore Hospital, 167 Newbury Street, Brockton, Mass. Program: "Treatment of Barbiturate Poisoning." Report of a case, Dr. Alfred L. Duncombe, Moore Hospital, Brockton, Mass. "Gastro-duodenal Hemorrhages from the Roentgenologist's Standpoint," Dr. Max Ritvo, Boston, Mass.; "Gastro-duodenal Hemorrhages from the Surgeon's Standpoint," Dr. G. A. Moore, Brockton, Mass.

G. A. MOORE, M.D., Secretary.
167 Newbury Street, Brockton.

SUFFOLK DISTRICT MEDICAL SOCIETY

November 1—The Censors of the Suffolk District Medical Society will meet for the examination of candidates at the Medical Library, 8 Fenway, Thursday, November 1, 1934, at 4:00 o'clock. Candidates should make personal application to the Secretary, and present their medical diplomas at least one week before the examination.

November 28—Meeting at the Boston Medical Library. Speakers: Dr. Frederick T. Lord, Dr. Edward D. Churchill, Dr. Roderick Heffron. Subject: Symposium on Pneumonia.

January 23, 1935—General Meeting in association with the Boston Medical Library. Speaker and subject to be announced later.

March 27, 1935—Clinical Meeting at the Boston Lying-In Hospital.

April 24, 1935—Clinical Meeting at the Children's Hospital.

The medical profession is cordially invited to attend all of these meetings.

ROBERT L. DeNORMANDIE, M.D., President.
GEORGE P. REYNOLDS, M.D. Secretary.
HENRY T. HUTCHINS, M.D., Boston Medical Library.

WORCESTER DISTRICT MEDICAL SOCIETY

November 14—Wednesday evening. Grafton State Hospital, North Grafton, Mass. 6:30 P.M.: Buffet supper. 7:30 P.M.: Scientific program and business session. Announcement of subjects and speakers to be presented at a later date. Buffet supper complimentary by the Hospital.

December 12—Wednesday evening. St. Vincent Hospital, Worcester, Mass. 6:30 P.M.: Dinner. 7:30 P.M.: Scientific program and business session. Announcement of subjects and speakers to be presented at a later date. Dinner complimentary by the Hospital.

January 9, 1935—Wednesday evening. Worcester City Hospital, Worcester, Mass. 6:30 P.M.: Buffet supper. 7:30 P.M.: Scientific program and business session. Announcement of subjects and speakers to be presented at a later date. Buffet supper complimentary by the Hospital.

February 13, 1935—Wednesday evening. Worcester State Hospital, Worcester, Mass. 6:30 P.M.: Dinner. 7:30 P.M.: Scientific program and business session. Announcement of subjects and speakers to be presented at a later date. Dinner complimentary by the Hospital.

March 13, 1935—Wednesday evening. The Memorial Hospital, Worcester, Mass. 6:30 P.M.: Buffet supper. 7:30 P.M.: Scientific program and business session. Announcement of subjects and speakers to be presented at a later date. Buffet supper complimentary by the Hospital.

April 10, 1935—Wednesday evening. Worcester Hahnemann Hospital, Worcester, Mass. 6:30 P.M.: Dinner. 7:30 P.M.: Scientific program and business session. Announcement of subjects and speakers to be presented at a later date. Dinner complimentary by the Hospital.

May 8, 1935—Wednesday afternoon and evening. Annual Meeting of the Worcester District Medical Society. The time and place of this meeting will be announced later.

ERWIN C. MILLER, M.D., Secretary.
27 Elm Street, Worcester.

WORCESTER NORTH DISTRICT MEDICAL SOCIETY

October 24—The quarterly meeting will be held at the State Colony at East Gardner on Wednesday, October 24, at 4:30 P.M. Dr. Richard M. Smith of Boston will discuss the subject of "Medical Economics." Lunch will be served promptly at 6. Ladies and guests invited.

FRANCIS M. McMURRAY, M.D., Secretary.
101 Prichard Street, Fitchburg.

BOOKS RECEIVED FOR REVIEW

International Clinics. Volume III. Forty-Fourth Series, 1934. Edited by Louis Hamman. 327 pp. Philadelphia, Montreal, and London: J. B. Lippincott Company.

Human Sterility. Causation, Diagnosis, and Treatment. By Samuel Raynor Meaker. With 27 Illustrations. 276 pp. Baltimore: The Williams & Wilkins Company. $4.00.

The Compleat Pediatrician. By W. C. Davison. North Carolina: Duke University Press, 1934. $3.75.

Murrell's What to Do in Cases of Poisoning. By P. Hamill. Beginning the Fourteenth Edition of "What to Do in Cases of Poisoning" by the late Dr. W. Murrell. 208 pp. New York: Paul B. Hoeber, Inc. $1.50.

Essentials of Histology. Descriptive and Practical. For the Use of Students. By Sir E. Sharpey-Schafer. Thirteenth Edition. Edited by H. M. Carleton. 618 pp. Philadelphia: Lea & Febiger, 1934. $5.00.

Medicine Man in China. By A. Gervais. 336 pp. New York: Frederick A. Stokes Company. $2.75.

Practical Talks on Heart Disease. By George L. Carlisle. 153 pp. Springfield and Baltimore: Charles C. Thomas. $2.00.

Annals of the Pickett-Thomson Research Laboratory. Monograph XVI, Part II. Influenza. By David Thomson and Robert Thomson. 1557 pp. London: Baillière, Tindall and Cox. $17.50.

Clinical Toxicology. Modern Methods in the Diagnosis and Treatment of Poisoning. By Erich Leschke. 346 pp. Baltimore: William Wood and Company. $5.00.

BOOK REVIEWS

The Chemistry of the Hormones. By Benjamin Harrow and Carl P. Sherwin. 227 pp. Baltimore: The Williams & Wilkins Company, 1934. $2.50.

During the past three decades, the body of knowledge concerned with the functions of the glands of internal secretion has grown significantly, the rôles played by their hormones in the regulation of body metabolism and of the myriad processes of growth and development attracting the efforts of a progressively augmenting army of investigators. Categories of methods of extraction of active principles have been evolved and each and all applied to animal and vegetable tissues and products of the greatest diversity of characters and origins. The basically important discoveries that have resulted from these endeavors constitute one of the most brilliant records of achievement spread on the pages of recent medical history. The products of the initial phases of investigative activity are multiplying at a rate that has long since outstripped knowledge of the source and nature of their active components and even of the qualitative composition of the extract itself. Seeming similarity in physiological response of substances of widely diverse immediate origin has far too frequently led to the undocumented assumption both of a chemical identity and an original common source. Equally, a wide variability in species response to an active extract has likewise produced the antithetical corollary and added still further to the confusion. Finally, a powerful competitive factor has engendered yet other complexities in the problem of resolution.

It is from this massive array of material embodied in the profuse literature of recent years that the authors of the present text have endeavored to abstract and collate a modest grouping of factual material primarily concerned with the single field of the chemistry of the hormones. In their introduction, they speak of a "practical book" of use to the worker who "wishes to prepare active hormone fractions or to isolate chemically pure hormones". A second goal is the presentation of present knowledge of the chemical characteristics of these substances.

That the text falls short of completeness is inevitable as the whole field is in a state of flux. There are, however, a certain number of extractive methods which have yielded solutions or suspensions with a marked biological potency. Certain of these extracts have been the sources of crystalline compounds which in turn exhibit the same power to produce the characteristic physiological responses. Finally, a very few of these presumably pure compounds have been resolved into their ultimate structural form, while a much larger number are to-day in the process of resolution, each having already yielded some measure of information as to its composition as a molecular entity. In bringing this material together, the authors have rendered a real service and accomplished, in no small degree, the objective avowed in their preface. A greater attention to the explicit statement of chemical minutiae might have added something to the practicality of the text. On the other hand, the basic methodology is well presented, and each new problem introduces its own chemical pitfalls which can be solved only as they appear, and then only by direct personal experience. The introduction of material dealing with proprietary synthetics is questionable; in the case of the odd carbon fat "intarvin" it is inappropriate.

In the selection of material dealing with aspects other than those purely chemical, the authors have been somewhat less happy. This in no small measure derives from the source material itself. Exception may and will be taken both to omissions and commissions; in the main, however, they deal with matter outside of the expressed purpose of the volume. The collection in small compass of basic fundamental facts meets a present need and emphasizes a future necessity. Only when the individual hormones have been established as true chemical entities of known and reproducible chemical structure will it be possible to cope successfully with the

myriad of perplexing problems which to-day baffle the worker in this field.

The Road to Adolescence. By Joseph Garland. 293 pp. Cambridge: Harvard University Press. $2.50.

Written in a simple, straightforward manner and in a style that makes it as interesting as it is instructive "The Road to Adolescence" serves as an important sequel to Dr. Garland's previous publication, "The Youngest Member of the Family." Such important subjects as environment and heredity as well as normal growth and normal physiology are discussed in terms that the parent can readily understand and thereby appreciate the constant changes that are taking place. The fundamental principles of nutritional and dietary requirements, the use of vaccines and serums, the proper selections of schools and camps, and many other questions are treated in an admirable manner. In the chapter dealing with the special problems in education, the deeply concerned parents will find an answer to many of the perplexities which they face, expressed in a clear and understanding way. There the treatment of the handicapped group of children is considered; the general principles to be followed in caring for children with behavior problems are treated in a manner denoting authority, together with the newer ideas relating to many of the remediable difficulties which may account for "poor marks" in school and many other phases which are of such great significance at this period of life. The last chapter, "As the Twig Is Bent," sums up, in a delightful way, the subjects of personality and behavior, of training of mind and morals. It is indeed refreshing to find all of these factors savored with the condiment of common sense.

A System of Clinical Medicine. By Thomas Dixon Savill. Edited by Agnes Savill, assisted by E. C. Warner. Ninth Edition. 1063 pp. Baltimore: William Wood and Company. $9.00.

The editor states that this book "differs from other medical text-books in that it approaches disease from the clinical standpoint, from the position of the physician who sees the patient at the bedside and seeks to trace the observed symptom to its hidden cause, the disease in operation." Each chapter concerns itself with a particular region of the body. The symptoms and signs referable to this region are considered first, then the physical signs of disease in this region and the methods used to elicit them are discussed. Following this there is a clinical classification of the various maladies affecting the region with a brief description of each disease, its diagnosis, prognosis and treatment.

The textbook is a medical education in one volume of a thousand pages. It combines courses in applied physiology, anatomy, pathology, bacteriology, physical diagnosis, laboratory examination and therapeutics. It actually accomplishes this tremendous undertaking and does it in a very readable manner but, in order to do it, it was of course necessary to be very superficial and rather dogmatic. The problem of medical diagnosis is made to appear very simple.

The medical graduate will find this work a fascinating postgraduate review and a valuable first court of appeal in studying a diagnostic problem. The medical student might find his studies made more interesting by this correlation of preclinical and clinical fundamental sciences—but, on the other hand, without a broad clinical background it is probable that he would find himself confused by the mass of detail and unable to see the diagnosis for the symptoms.

Clio Medica. Edited by E. B. Krumbhaar. **XIII. German Medicine.** By W. Haberling. 160 pp. New York: Paul B. Hoeber, Inc. $1.50.

German medicine cannot, as Professor Haberling points out in his preface, be separated from the growth of medical knowledge in general. In the Middle Ages it was closely allied with Italian medicine and as time passed it was influenced by France and England, only to reach its high point, and perhaps its most independent existence, after 1870. The last sixty years occupy a large part of this résumé of medicine in Germany. Although no new facts are presented, one reads this book with considerable pleasure for it is accurately written, comprehensive and well documented. The translation into English is good and the book is well produced. It forms a valuable addition to this series of primers on the history of medicine.

A Textbook of Gynecology. By Arthur Hale Curtis. Second Edition, Reset. 493 pp. Philadelphia and London: W. B. Saunders Company. $6.00.

The first edition of this admirable textbook of gynecology was favorably reviewed in the *Journal* at the time of its publication in 1930. Revision, in preparation for this second edition, has been carried forward continuously during the intervening years. The text has been elaborated and enlarged by the accumulation of new subject matter and additional figures. The original illustrations, three hundred in number, have been made chiefly by Mr. Thomas Jones. The book is essentially a record of the author's personal experience as chief of the Department of Obstetrics and Gynecology in Northwestern University Medical School and in the Passavant Memorial Hospital, Chicago. The arrangement of material is original but logical and covers the entire field satisfactorily within the compass of less than five hundred pages. Each of the forty-six chapters is followed by an excellent index to the entire volume, which, with the table of contents, makes it easy to locate the consideration of any subject. The work should continue to prove of established value both to students and practitioners.